Software version TC1.0
NOVEMBER 2008

# TANDBERG T1

## Administrator Guide

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# What's in this guide?

The top menu bar and the entries in the Table of Contents are all hyperlinks, just click on them to go to the topic.

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Chapter 1

# Introduction

Thank you for choosing TANDBERG!

The instant telepresence experience designed for the executive office or high-end collaboration room — available anytime you need it. With optimal camera height, a 65” LCD screen and crystal-clear video, the TANDBERG T1 delivers an unparalleled user experience and enables executives to truly see eye-to-eye.

### How to read this document

You will find that some places information has been copied from other chapters (but adapted, when needed) to let you have all the relevant information there and then. This helps eliminating the need to read through long sections before you can even think of getting started.

Our main objective with this user guide is to address your goals and needs. Please let us know how well we succeeded!

We recommend you visit the TANDBERG web site regularly for updated versions of the manual.
Go to: ▶ http://www.tandberg.com/docs

In this chapter...


- TANDBERG T1 At a glance
- Intellectual property rights
- Trademark
- Copyright
- Disclaimer
- Patent information
- Safety instructions
- Environmental issues


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# TANDBERG T1 at a glance

The TANDBERG T1 delivers an unparalleled user experience and enables executives to truly see eye-to-eye, delivering crisp, clear 1080p HD video and ultra wide band audio.

## Natural communication

Making eye contact gives a natural communication between the people, therefore the camera is placed near the display to give optimal eye-contact. The Best view (preview feature) face-recognition functionality will further improve the eye contact.

## Powerful engine

Codec C90 with embedded four site HD MultiSite with individual transcoding, SXGA** content sharing and flexible I/O panel.

## End to end 1080p HD

The T1 and all its components are designed to take full advantage of the 1080p video resolution. From the camera, through the codec and to the display, the T1 delivers superior video quality.

## Exclusive look

Light and clean Scandinavian design wrapped up in natural materials like recyclable aluminium. Slim design with a thickness of only 180mm. All cables are hidden which gives a neat, attractive look from every angle.

## 65” Full HD display

At a natural height and perfect resolution for a superior eye contact and lifelike representations.

## Superior audio

High end hi-fi speaker module with ultra wide band audio (20kHz), full duplex, full echo cancelling and stereo speaker module with 4x Woofer and 3x Tweeter speaker elements. Expandable to eight microphone inputs.

## Status indicators*

The status indicators are placed off screen, which makes them easy to spot and gives less distraction during meetings.

*Status indicators will be supported in a future software release.

**SXGA content sharing supported in this release. Will support UXGA content sharing in a future software release.

## Intellectual Property Rights

This Administrator Guide and the Products to which it relates contain information that is proprietary to TANDBERG and its licensors. Information regarding the Products is found on the page entitled License Agreements and Patent Information.

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## Disclaimer

The specifications for the Products and the information in this document are subject to change at any time, without notice, by TANDBERG.

Every effort has been made to supply complete and accurate information in this Administrator Guide, however, TANDBERG assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

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The Products that are covered by this Administrator Guide are protected under copyright, patent, and other intellectual property rights of various jurisdictions. Any applicable software licenses and any limited warranty are located in the License Information section in this TANDBERG Codec C90 Administrator Guide.

This Product is

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## Patent Information

The products described in this manual are covered by one or more of the following patents:

| | | |
|---|---|---|
| US6,584,077 | US5,838,664 | US5,600,646 |
| US5,003,532 | US5,768,263 | US5,991,277 |
| US7,034,860 | US7,010,119 | EP01953201 |
| US6.731.334 | GB1338127 | |

Other patents pending.

Please view ▶ http://www.tandberg.com/tandberg_pm.jsp for an updated list

## Copyright Notice

The product that is covered by this Administrator Guide is protected under copyright, patent, and other intellectual property rights of various jurisdictions. This product is Copyright © 2008, Tandberg Telecom AS. All rights reserved. This product includes copyrighted software licensed from others.

A document describing the copyright notices and the terms and conditions of use can be found at: ▶ http://www.tandberg.com/docs

Navigate to User manuals > TANDBERG Codec C90 Copyright and License Information to download the pdf.

IMPORTANT: USE OF THIS PRODUCT IS SUBJECT IN ALL CASES TO THE COPYRIGHT RIGHTS AND THE TERMS AND CONDITIONS OF USE REFERRED TO ABOVE. USE OF THIS PRODUCT CONSTITUTES AGREEMENT TO SUCH TERMS AND CONDITIONS.

# Safety Instructions

For your protection please read these safety instructions completely before you connect the equipment to the power source. Carefully observe all warnings, precautions and instructions both on the apparatus and in these operating instructions.

Retain this manual for future reference.

## Water and Moisture

Do not operate the apparatus under or near water – for example near a bathtub, kitchen sink, or laundry tub, in a wet basement, near a swimming pool or in other areas with high humidity.

- Never install jacks for communication cables in wet locations unless the jack is specifically designed for wet locations.
- Do not touch the product with wet hands.

## Cleaning

Unplug the apparatus from communication lines, mains power-outlet or any power source before cleaning or polishing. Do not use liquid cleaners or aerosol cleaners. Use a lint-free cloth lightly moistened with water for cleaning the exterior of the apparatus.

## Ventilation

Do not block any of the ventilation openings of the apparatus. Never cover the slots and openings with a cloth or other material. Never install the apparatus near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Do not place the product in direct sunlight or close to a surface directly heated by the sun.

## Lightning

Never use this apparatus, or connect/disconnect communication cables or power cables during lightning storms.

## Dust

Do not operate the apparatus in areas with high concentration of dust.

## Vibration

Do not operate the apparatus in areas with vibration or place it on an unstable surface.

## Power Connection and Hazardous Voltage

The product may have hazardous voltage inside.

- Never attempt to open this product, or any peripherals connected to the product, where this action requires a tool.
- This product should always be powered from an earthed power outlet.
- Never connect attached power supply cord to other products.
- In case any parts of the product has visual damage never attempt to connect main power, or any other power source, before consulting service personnel
- The plug connecting the power cord to the product/power supply serves as the main disconnect device for this equipment. The power cord must always be easily accessible.
- Route the power cord so as to avoid it being walked on or pinched by items placed upon or against it. Pay particular attention to the plugs, receptacles and the point where the cord exits from the apparatus.
- Do not tug the power cord.
- If the provided plug does not fit into your outlet, consult an electrician.
- Never install cables, or any peripherals, without first unplugging the device from its power source.

## Servicing

- Do not attempt to service the apparatus yourself as opening or removing covers may expose you to dangerous voltages or other hazards, and will void the warranty. Refer all servicing to qualified service personnel.
- Unplug the apparatus from its power source and refer servicing to qualified personnel under the following conditions:
    - If the power cord or plug is damaged or frayed.
    - If liquid has been spilled into the apparatus.
    - If objects have fallen into the apparatus.
    - If the apparatus has been exposed to rain or moisture
    - If the apparatus has been subjected to excessive shock by being dropped.
    - If the cabinet has been damaged.
    - If the apparatus seems to be overheated.
    - If the apparatus emits smoke or abnormal odor.
    - If the apparatus fails to operate in accordance with the operating instructions.

## Accessories

Use only accessories specified by the manufacturer, or sold with the apparatus.

## Communication Lines

Do not use communication equipment to report a gas leak in the vicinity of the leak.

# Environmental Issues

Thank you for buying a product which contributes to a reduction in pollution, and thereby helps save the environment. Our products reduce the need for travel and transport and thereby reduce pollution. Our products have either none or few consumable parts (chemicals, toner, gas, paper).

### TANDBERG's Environmental Policy

Environmental stewardship is important to TANDBERG's culture. As a global company with strong corporate values, TANDBERG is committed to following international environmental legislation and designing technologies that help companies, individuals and communities creatively address environmental challenges.

TANDBERG's environmental objectives are to:

- Develop products that reduce energy consumption, CO2 emissions, and traffic congestion
- Provide products and services that improve quality of life for our customers
- Produce products that can be recycled or disposed of safely at the end of product life
- Comply with all relevant environmental legislation.

### Digital User Guides

TANDBERG is pleased to announce that we have replaced the printed versions of our user guides with digital versions available on the TANDBERG web site: ▶ http://www.tandberg.com/docs. The environmental benefits of this are significant. The user guides can still be printed locally, whenever needed.

### European Environmental Directives

As a manufacturer of electrical and electronic equipment TANDBERG is responsible for compliance with the requirements in the European Directives 2002/96/EC (WEEE - Waste Electrical and Electronic Equipment) and 2002/95/EC (RoHS).

The primary aim of the WEEE Directive and RoHS Directive is to reduce the impact of disposal of electrical and electronic equipment at end-of-life. The WEEE Directive aims to reduce the amount of waste electrical and electronic equipment sent for disposal to landfill or incineration by requiring producers to arrange for collection and recycling. The RoHS Directive bans the use of certain heavy metals and brominated flame retardants to reduce the environmental impact of WEEE which is in landfill or incinerated.

TANDBERG has implemented necessary process changes to comply with the European WEEE Directive (2002/96/EC) and the European RoHS Directive (2002/95/EC).

### Waste Handling

In order to avoid the dissemination of hazardous substances in our environment and to diminish the pressure on natural resources, we encourage you to use the appropriate recycling systems in your area. Those systems will reuse or recycle most of the materials of your end of life equipment in a sound way.

TANDBERG products put on the market after August 2005 are marked with a crossed-out wheelie bin symbol that invites you to use those take-back systems.

Please contact your local supplier, the regional waste administration or visit our web page ▶ http://www.tandberg.com/recycling if you need more information on the collection and recycling system in your area.

### Information for Recyclers

As part of compliance with the European WEEE Directive, TANDBERG provides recycling information on request for all types of new equipment put on the market in Europe after August 13th 2005.

Please contact TANDBERG and provide the following details for the product for which you would like to receive recycling information:

- Model number of TANDBERG product
- Your company's name
- Contact name
- Address
- Telephone number
- E-mail.

## Chapter 2

# Getting started

This chapter introduces you to the codec and gets you up and going.

This guide has been divided into several chapters, all of which provide different information. You can access the chapters directly by clicking on the menu bar at the top of this page.

In this chapter...


- System overview
- Cable configurations
- Using the remote control
- Turn on the system
- Verify IP address settings
- Setting a static IP address
- Add the system to the network
- Verify your settings
- Time zone settings


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# System overview

See the TANDBERG T1 Installation Sheet for instructions of how to assemble the system.

## Codec C90

Codec C90 - The Telepresence Engine supporting:

- Full HD video
- High resolution data sharing
- Full HD Multisite
- Rich I/O capabilities

## PrecisionHD 1080p

Full HD Camera designed for Visual communication with:

- 12 x optical zoom
- Fast and precise pan, tilt and zoom

## Monitor 65"

Full HD LCD Display

## Audio module

Wide band audio module supporting:

- 20 kHz AAC-LD
- Full echo canceling
- Stereo

## Audio amplifier

Optimized DNAM for TANDBERG T1 providing crystal clear and natural audio.

## Microphones

3 x Microphones

## Remote control

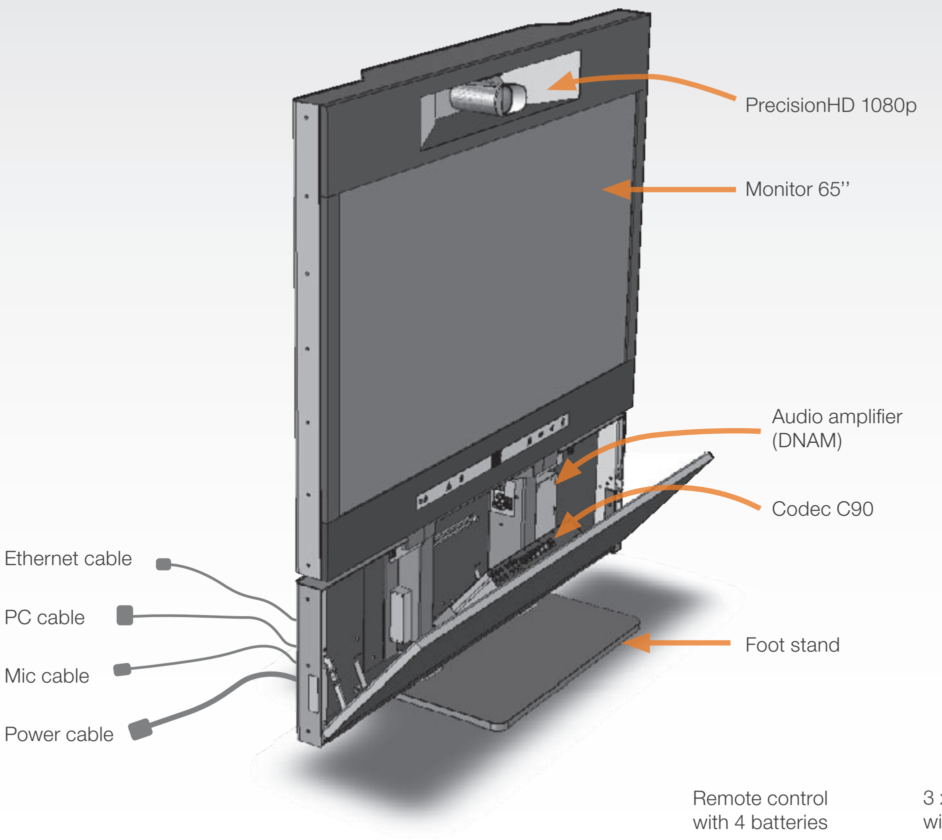
- 1 x TANDBERG Remote Control TRC5
- 4 x AAA batteries

## Foot stand

1 x Foot stand

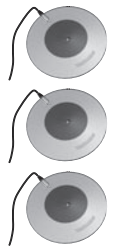
- Standalone or wall mounting

The TANDBERG T1 is delivered with:



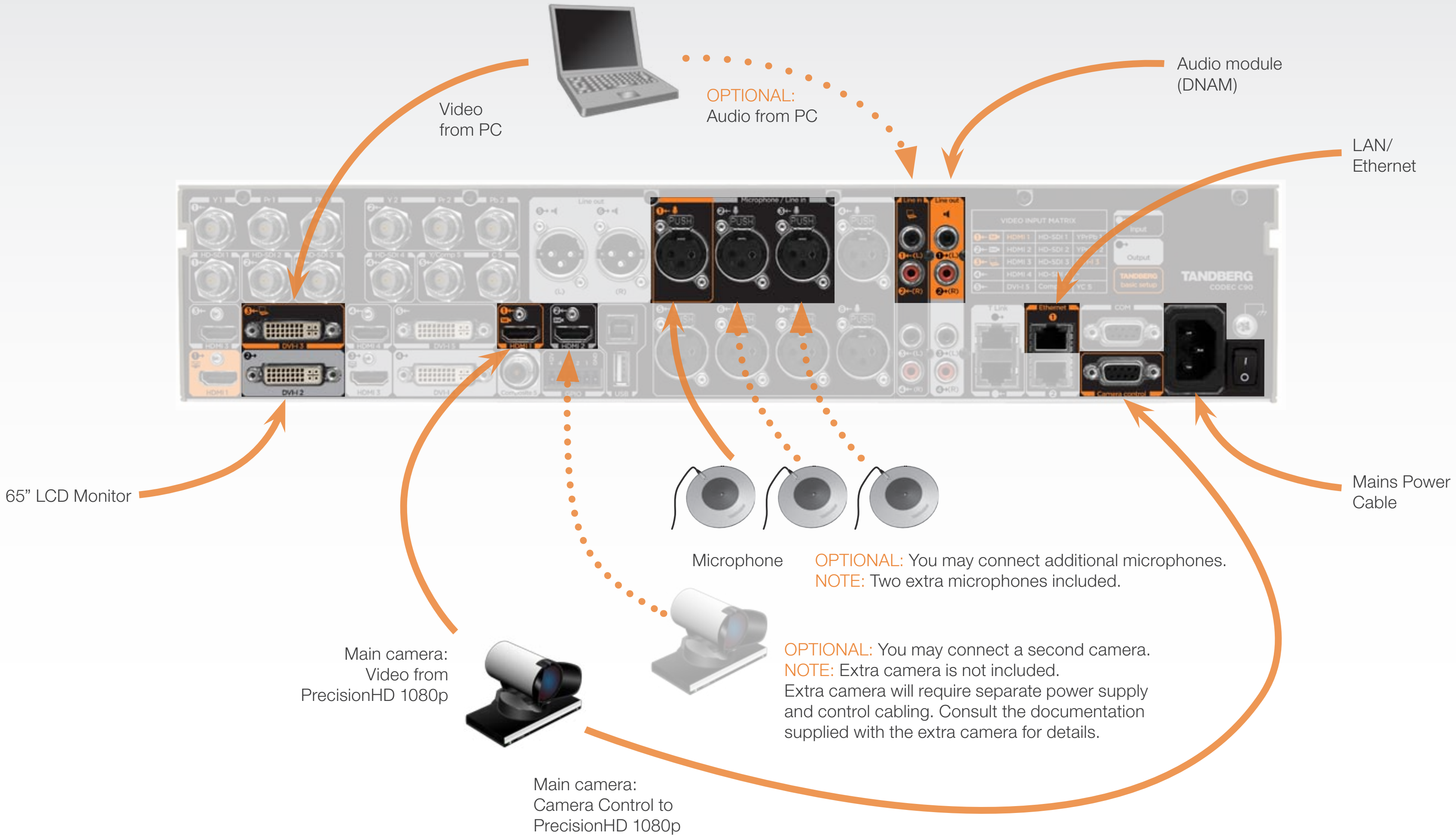

Remote control with 4 batteries

3 x Microphones with cables



# Cable configurations

The illustration shows the cable configurations for the Codec C90 at rear side of the codec. The codec is located in the bottom module of the T1 system.




Make sure the codec has been switched off and disconnected from the line voltage whenever connecting or disconnecting other equipment.

# Using the Remote Control

The functions keys in the upper part of the remote control reflects the soft keys on screen.

... and the middle part of the remote control is used to handle the video part of the call.

... while the lower part of the remote control resembles very much the keypad of a mobile phone

## Batteries

Make sure the remote control has working batteries (4 x AAA batteries).

FUNCTION KEYS: Each key reflects a soft key on screen and represents shortcuts and advanced functions.

ARROW UP/DOWN: Use the up ▲ and down ▼ arrow keys to navigate in the menu.

ARROW LEFT: Press the left ◀ arrow key to go one step back in the menu or to move to the left in a text field.

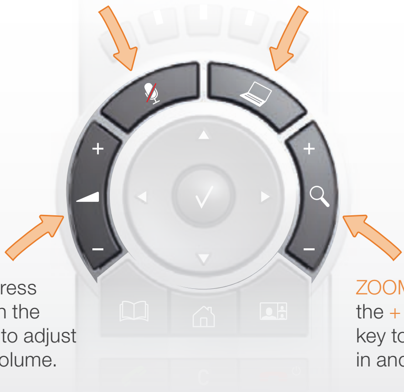
ARROW RIGHT: Press the right ▶ arrow key to expand the selected menu item or to move to the right in a text field.

OK/SELECT: Press the OK/ Select key to confirm your choice or selection.

Use the arrow keys to move the camera (pan, tilt) when the menu on screen is not displayed.

MICROPHONE: Press the Microphone key to toggle the microphones on/off.

PRESENTATION: Press the Presentation key to show/hide a presentation.

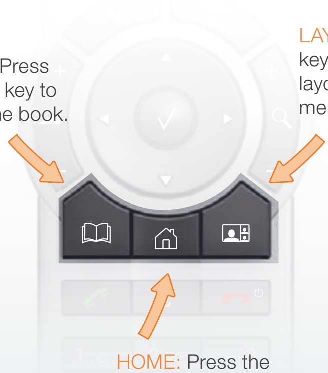


VOLUME: Press the + or – on the Volume key to adjust the codec volume.

ZOOM: Press the + or – on the Zoom key to zoom the camera in and out.

PHONE BOOK: Press the Phone Book key to display the phone book.

LAYOUT: Press the Layout key to select a picture layout from the Layout menu.



HOME: Press the Home key to go back to the main menu.

# Using the Remote Control, *cont...*

The functions keys in the upper part of the remote control reflects the soft keys on screen.

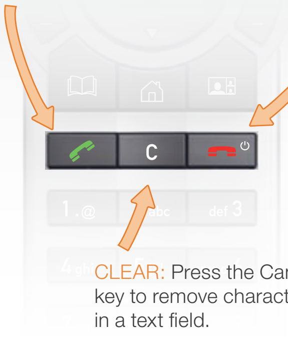
... and the middle part of the remote control is used to handle the video part of the call.

... while the lower part of the remote control resembles very much the keypad of a mobile phone

## CALL KEY

INITIATE CALL: Select a name from the Phone book or enter the name, number or URI and press the Call key to initiate the call.

SHORTCUT TO RECENT CALLS: Use the Call button as a shortcut to Recent Calls when the Call menu is not visible.



END CALL, STANDBY: Press the End Call key to end a call, *or* when idle, press and hold the key to go into standby mode.

CLEAR: Press the Cancel key to remove characters in a text field.

## ALPHANUMERIC KEYPAD

Use the keypad in the same way as you would use a cellular phone.

0-9, a-z, period (.), @, space, *: Press a key repeatedly to toggle between the options displayed on each key.

abc/123 #: Press the # key to toggle between lower case characters and numbers.

## Waking up the system

Press any key on the remote control to wake up the system.

Press the HOME key to show the menu on screen

Touch the rubber line sensors along the sides to wake up the system

## IR transmitter range (DIP switch setting)

The IR transmitter has a short and long range. Open the battery cover and remove the batteries to set the DIP switch.

- Short range (1 m): Move the DIP switch down
- Long range: Move the DIP switch up.

The DIP switch

## 1 Turn on the system

- Turn on the codec and wait a few minutes for the system to start
- Make sure the remote control has the batteries installed.
- Press **Home** ( ) on the remote control to show the menu on screen
- When you can see the menu on screen, proceed to Step 2.

### Show the menu:

- Press **Home** ( ) on the remote control to show the menu on screen

### Navigate in the menu:

- Use the arrow keys on the remote control to navigate up and down in the menus

### Confirm your choice:

- To confirm your choice, press **OK** (√) on the remote control

## 2 Verify IP address settings

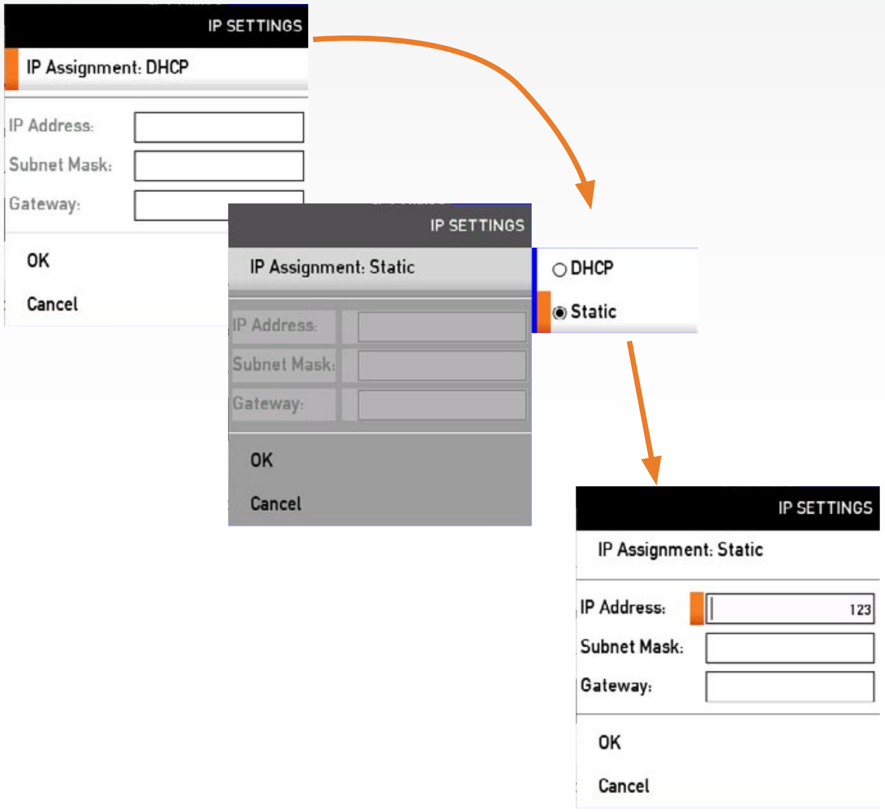
Go to System Information to verify the IP address:

1. Navigate to Settings > System Information
2. When the IP address is automatically assigned from a DHCP server, the Address of the codec is shown on the System Information page.
3. Press **Home** ( ) to exit.

## 3 If you need to set a static IP address

Go to IP Settings to set static IP addresses:

1. Navigate to Settings > Administrator Settings > IP Settings.
2. Set IP Assignment to Static. Press the left arrow key to go back one step
3. Enter the IP Address, Subnet Mask and Gateway address in the address fields. The sequence is shown below.
4. Press **OK** to save the changes, or Cancel to leave without saving.
5. Press **Home** ( ) to exit.



## 4 Add the system to the network

Your service provider should have provided you with the information you need to get on-line.

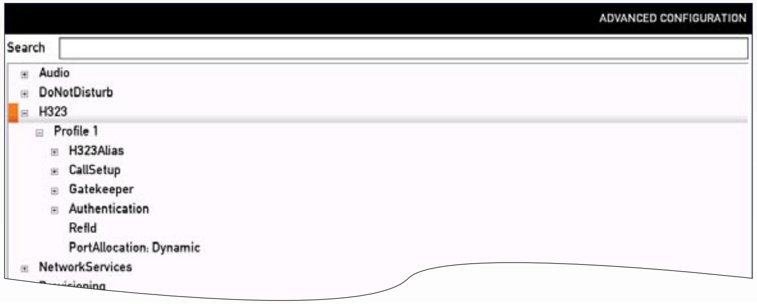
For H323 type of communication, this will include such things as system name, H323 alias, gatekeeper address, etc. For SIP type of communication, similar type of information will be supplied.

For networks administrated through TMS (TANDBERG Management Suite), your TMS administrator will be able to assist you when configuring.

The **H323** and **SIP** settings are configured from the Administrator Settings menu:

Navigate to **Settings > Administrator Settings > Advanced Settings**.

- Expand the items in need of modification and enter the information supplied by your service provider.




## 5 Verify your settings

We strongly recommend that you verify the settings by inspecting the System Information list.

You do this by accessing the System Information in the same way as you did when you verified you IP address setting.

Go to System Information to verify the settings:

1. Navigate to **Settings > System Information**
2. Verify the previous configurations. For example, if you successfully registered to a SIP server the **Status** will show **Registered**. If the registration failed the **Status** will show **Not registered**.
3. Press Home () to exit.

## 6 Time zone settings

Verify the date and time to see if the time zone settings need to be adjusted. The date and time is located in the upper right corner on screen.

Go to Time settings to set the NTP (date and time) settings:

1. Navigate to **Settings > Administrator Settings > Time**
2. You may need to consult the NTP Time Zone expression list to find the right expression. Go to the Appendices section and the NTP Time Zone expressions to see a complete overview.
3. Enter the time zone expression for where the system is located. The default value is Etc/UTC.

   **NOTE:** Spelling correctly is important when entering the NTP Time Zone expression
4. Press **Save** to save the changes, or Cancel to leave without saving.
5. Press **Home** () to exit.

## Chapter 3

# About the menus

In this chapter...

- Explains the menu system

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# About the menus

The menu system is divided into three levels:

1. The Home menu
2. The Settings menu
3. The Administrator Settings menu

## Navigate in the menus

Use the remote control to navigate in the menus:

- Use the arrows down/up to select a menu item
- Use the arrow right to expand the selection
- Use the arrow left to go one step back

## Change a value

- Select a value from a drop down list and press the OK button to save, or press the left arrow to leave without saving.
- Enter a value/text in a value/text field. Press Save to save the change or Cancel to leave without saving.

In this guide we will concentrate on what's behind the Administrator Settings menu and leave the other menus to be explained in the Codec C90 User Guide.

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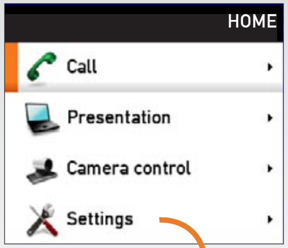
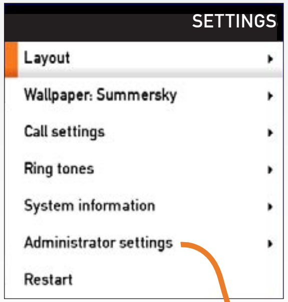
Go to: ▶ http://www.tandberg.com/docs




### The Home menu

Press the Home key on the remote control to open the Home menu:

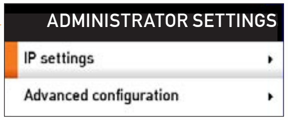
- Open the Call menu to make a call
- Open the Presentation menu to select a presentation source
- Open the Camera control menu to pan, tilt or zoom the camera
- Open the Settings menu to configure the system




### The Settings menu

The Settings menu lets the user:

- Open the Layout control menu to control the screen layout, including selfview
- Select Wallpaper to chose a background picture on screen
- Open the Call settings menu to configure the default bit rate and auto answer settings
- Select Ring tones to chose a ring tone
- Open the System Information page to see an overview of the system configurations
- Open the Administrator settings menu to configure the system
- Select Restart to restart the system.




### The Administrator settings menu

The Administrator settings menu lets the user:

- Open the IP address menu to configure the IP settings
- Open the Advanced configuration menu to access the system configuration settings

Changes in the administrator settings may affect the behavior of the system and should be configured by the system administrator.

Chapter 4

# The Settings menu

In this chapter...

- Explaining the administrator settings

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# Administrator settings

The Administrator settings menu lets the user configure the IP settings and the system settings.

## The IP Settings menu

The IP Settings are found in the IP Settings menu as well as in the Advanced Configuration menu in the Network settings menu.

Changes in the administrator settings may affect the behavior of the system and should be configured by the system administrator.

Each setting is explained in The settings library section.

### Navigate in the menus

Use the remote control to navigate in the menus:

- Use the arrows down/up to select a menu item
- Use the arrow right to expand the selection
- Use the arrow left to go one step back

### Change a value

- Select a value from a drop down list and press the OK button to save, or press the left arrow to leave without saving.
- Enter a value/text in a value/text field. Press Save to save the change or Cancel to leave without saving.

In this guide we will concentrate on what's behind the Administrator Settings menu and leave the other menus to be explained in the Codec C90 User Guide.

You can download the Codec C90 User Guide from our web site.
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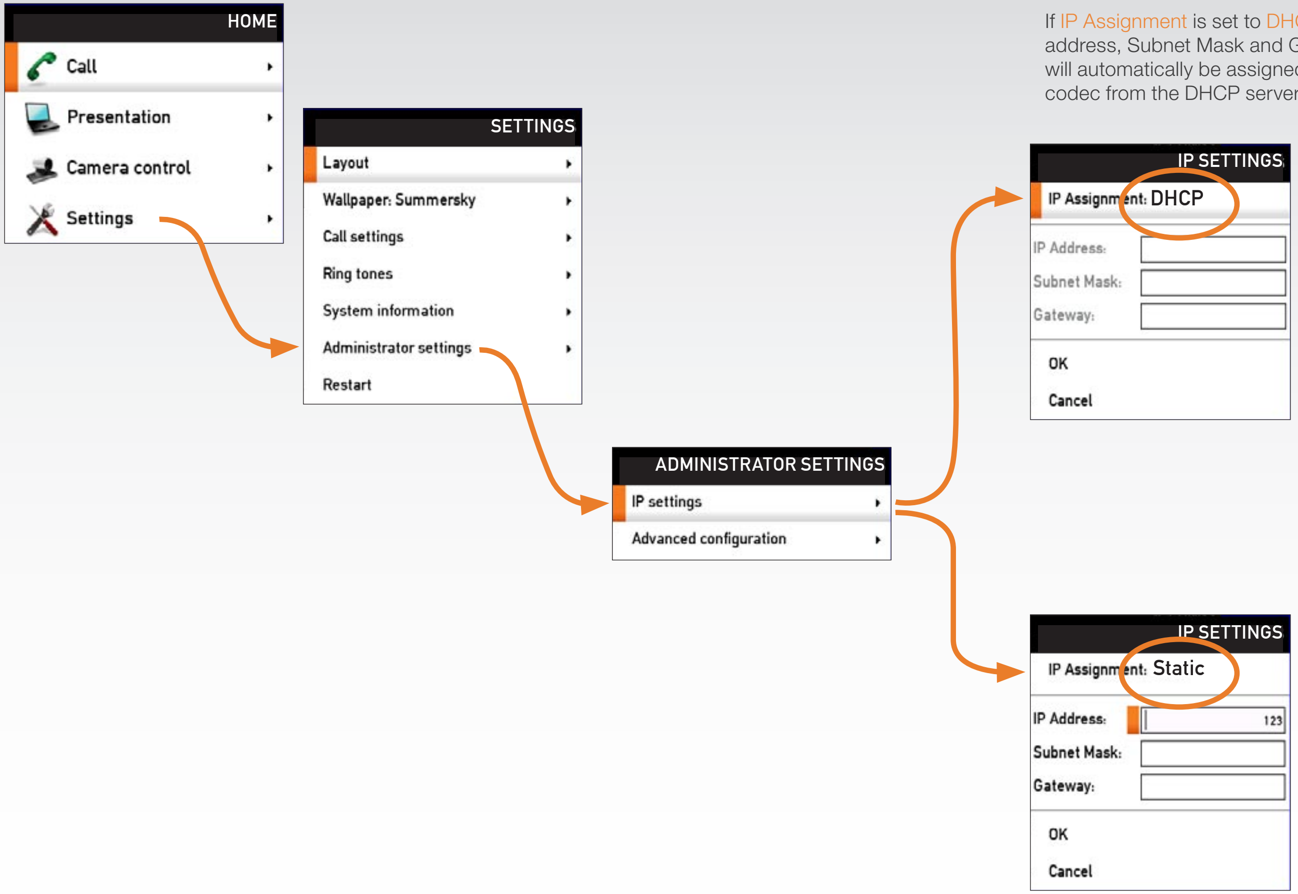
If IP Assignment is set to DHCP the IP address, Subnet Mask and Gateway will automatically be assigned to the codec from the DHCP server.




If IP Assignment is set to Static the IP address, Subnet Mask and Gateway must be defined manually:

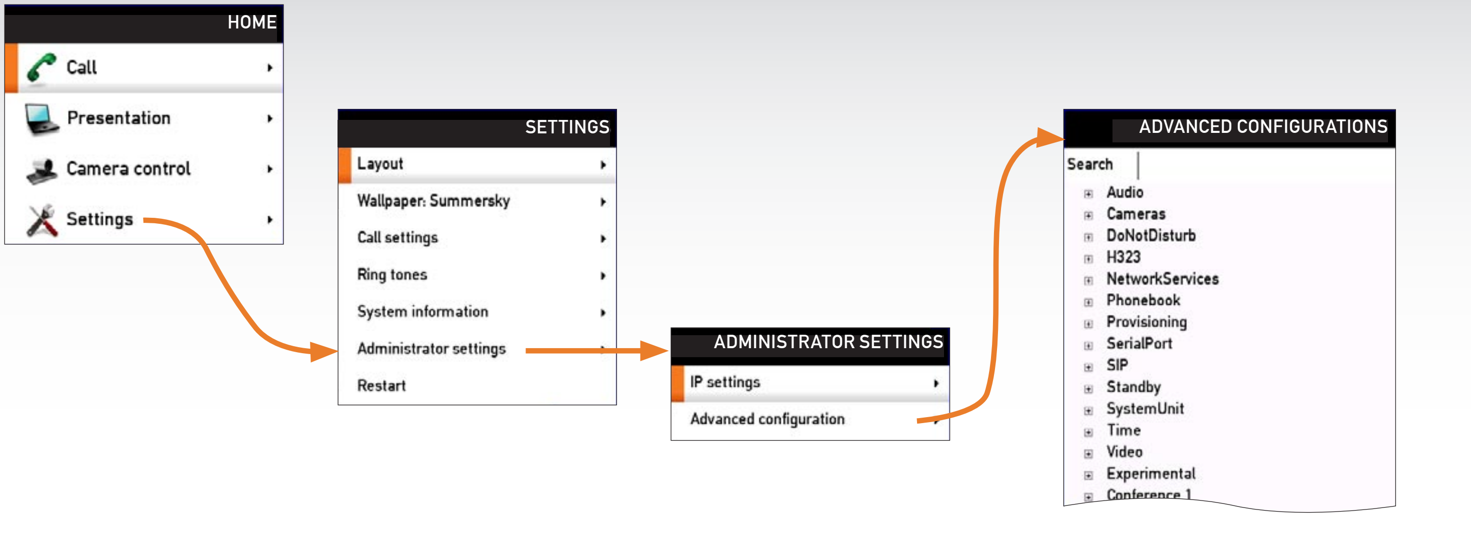
- On the remote control, press the arrow down key to highlight an address field. Enter the IP address, Subnet Mask and Gateway address.
- Press OK to confirm the new value or Left arrow to cancel.

Changes in the administrator settings may affect the behavior of the system and should be configured by the system administrator.

## Administrator settings, *cont...*

The Administrator settings menu lets the user:

- Open the IP address menu to configure the IP settings
- Open the Advanced configuration menu to access the system configuration settings




### The Advanced configuration menu

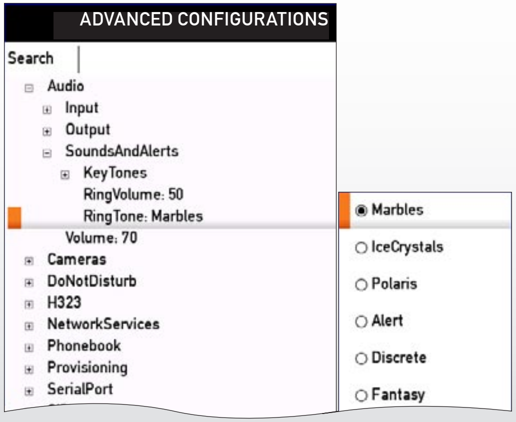
The Advanced configuration defines the system settings. The system settings are structured in a hierarchy, making up a database of system settings.

Changes in the administrator settings may affect the behavior of the system and should be configured by the system administrator.

Each setting is explained in The settings library section.

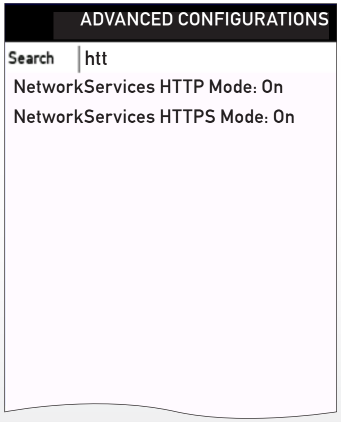
### Navigate in the menu

1. Use the up ▲ and down ▼ arrow keys on the remote control to navigate in the menu
2. Press the right ▶ arrow key to expand the selected menu item or to move to the right in a text field
3. Press the left ◀ arrow key to go one step back in the menu or to move to the left in a text field
4. Press the OK/Select key to confirm your choice or selection




### Search

Enter the as many characters as needed, until the setting you are searching for displays in the list.




In this guide we will concentrate on what's behind the Administrator Settings menu and leave the other menus to be explained in the Codec C90 User Guide.

You can download the Codec C90 User Guide from our web site.
Go to: ▶ http://www.tandberg.com/docs

## Chapter 5

# Administrator Settings Library

This chapter gives a detailed description of the administrator settings

The administrator settings defines the system settings and are structured in a hierarchy, making up a database of system settings.

**NOTE:** The description of the Administrator settings are preliminary, and subject to change.

In this chapter...


- Audio
- Cameras
- Conference
- Do Not Disturb
- H323
- Network
- Network Services
- Phone Book Server
- Provisioning
- Serial Port
- SIP
- Standby
- System Unit
- Video


www.tandberg.com

# The Advanced configuration menu

In the following pages you will find a complete list of the administrator settings. The examples shows either the default value or an example of a value.

We recommend you visit the TANDBERG web site regularly for updated versions of the manual. Go to: ► http://www.tandberg.com/docs

**NOTE:** The description of the Administrator settings are preliminary, and subject to change.

## The Audio settings

### Audio Volume: <0..100>

Sets the volume level [0-100] on the loudspeaker output in steps of 0.5dB from -34.5dB to 15dB. Volume = 0 indicates volume Off.

The volume level bar which is displayed on screen, when using the remote control, goes from 0 to 20.

Range: The volume level goes from 0 to 100

Volum level equals Audio gain value

0 equals 0

1 equals -34.5 dB

70 equals 0.0 dB

100 equals 15.0 dB

Example: `Audio Volume: 70`

### Audio Input Microphone [1..8] Type: <Microphone/Line>

The microphone inputs are intended for electret type microphones. The microphone inputs are balanced with 48 V phantom power. The microphone input can be set to line or microphone mode. Addresses the specific microphone.

Microphone: Phantom voltage and pre-amplification is On

Line: Select Line when you have a standard balanced line input. The phantom voltage and pre-amplification is Off.

Example: `Audio Input Microphone 1 Type: Line`

### Audio Input Microphone [1..8] Mode: <On/Off>

By default, all inputs are enabled. Just plug in an audio source and it is active. Audio inputs that are On will automatically be mixed. Unconnected inputs will automatically be muted. Addresses the specific microphone.

On: Turns the microphone On.

Off: Connected but unused inputs should be set to Off to prevent audio/noise from the inputs.

Example: `Audio Input Microphone 1 Mode: On`

### Audio Input Microphone [1..8] Level: <0..18>

Defines the input level of each microphone in steps of 1dB from 0dB to 18 dB. Addresses the specific microphone.

Please see the Audio Level tabels in the Codec C90 System Integrators Guide for a complete overview of the menu values represented in dB.

Range: 0 to 18 dB

Example: `Audio Input Microphone 1 Level: 14`

### Audio Input Microphone [1..8] EchoControl Mode: <On/Off>

The echo canceller continuously adjusts itself to the audio characteristics of the room and compensate for any changes it detects in the audio environment. If the changes in the audio conditions are very significant the echo canceller may take a second or two to re-adjust. Addresses the specific microphone.

On: Echo Control is normally set to On to prevent the far end from hearing their own audio. Once selected, echo cancellation is active at all times.

Off: Echo Control should be switched Off if external echo cancellation or playback equipment is used.

Example: `Audio Input Microphone 1 EchoControl Mode: On`

### Audio Input Microphone [1..8] EchoControl NoiseReduction: <On/Off>

The system has a built-in noise reduction which reduces constant background noise (e.g. noise from air-conditioning systems, cooling fans etc.). In addition, a high pass filter (Humfilter) reduces very low frequency noise. Requires the Echo Control Mode to be enabled for the specified microphone. Addresses the specific microphone.

On: The Noice Reduction should be set to On in the presence of low frequency noise.

Off: Turns Noise Reduction Off for the specified microphone input.

Example: `Audio Input Microphone 1 EchoControl NoiseReduction: On`

### Audio Input HDMI [3, 4] Mode: <On/Off>

Determines whether or not the audio channel on the HDMI input should be active. The HDMI 3 and HDMI 4 has audio channels. Addresses the specific Audio HDMI input.

On: Set to On to enable the audio channel on the HDMI input 3 or 4.

Off: Set to On to disable the audio channel on the HDMI input.

Example: `Audio Input HDMI 3 Mode: On`

### Audio Input Line [1..4] Mode: <On/Off>

Determines whether or not an Audio Line input is active. Addresses the specific Audio Line input.

On: Set to On to enable the Audio Line input.

Off: Set to Off to disable the Audio Line input.

Example: `Audio Input Line 1 Mode: On`

### Audio Input Line [1..4] Level: <0..18>

Defines the input level of each Line input in steps of 1dB from 0dB to 18 dB. Addresses the specific Audio Line input.

Please see the Audio Level tabels in the Codec C90 System Integrators Guide for a complete overview of the menu values represented in dB.

Range: 0 to 18 dB

Example: `Audio Input Line 1 Level: 10`

### Audio Input Line [1..4] Channel: <Left/Right/Mono>

Defines whether the Audio Line input is a mono signal or part of a multichannel signal.

Left: The Audio Line input signal is the left channel of a stereo signal.

Right: The Audio Line input signal is the right channel of a stereo signal.

Mono: The Audio Line input signal is a mono signal.

Example: `Audio Input 3 Channel: Left`

### Audio Input Line [3..4] LoopSuppression: <On/Off>

Loop suppression detects whether a delayed signal loop is present from an audio Line output to an audio Line input on the codec. If a loop is detected this unwanted feedback is suppressed. This function may be useful if a DVD player is connected to both an input and an output of the codec. If the DVD player is in stop or record mode it will loop the output signal from the codec directly back to the codec's input.

On: Set to On to activate Loop Suppression. When Loop Suppression is activated the codec will detect delayed signal loops from line output 3 to line input 3 and from line output 4 to line input 4. (Only line input 3 and 4, and line output 3 and 4 are intended connected to a DVD player in the current setup.)

Off: Set to Off to deactivate Loop Suppression. Note! Line input 1 and 2 do not support Loop Suppression, hence Loop Suppression can be set to Off only for these outputs.

Example: `Audio Input Line 3 LoopSuppression: On`

### Audio Output Line [1..6] Mode: <On/Off>

Determines whether or not an Audio Line output is active. Addresses the specific Audio Line output.

On: Set to On to enable the Audio Line output.

Off: Set to Off to disable the Audio Line output.

Example: `Audio Output Line 1 Mode: On`

### Audio Output Line [1, 3] Type: <Auto/SPDIF>

Determines if the Audio Line output is an analog or digital type output. Addresses the specified Audio Line output (1 or 3).

Auto: The system will select analog or digital (SPDIF) mode depending on the detected Audio Module. If a TANDBERG Digital NAM is detected then SPDIF mode will be selected, otherwise analog mode will be selected.

SPDIF: Set to SPDIF when you want the Audio Line 1 or 3 output to be in digital mode. This will disable Output Line 2 and 4.

Example: `Audio Output Line 1 Type: Auto`

### Audio Output Line [2, 4..6] Type: <Analog>

Line output 2, 4, 5, 6 are dedicated analog outputs, hence type can be set to analog only.

Example: `Audio Output line 2 type: analog`

### Audio Output Line [1..6] Level: <-18..0>

Defines the output level of the specified Audio Output Line in steps of 1dB from -18dB to 0dB. Addresses the specific Audio Line output connector.

Please see the Audio Level tabels in the Codec C90 System Integrators Guide for a complete overview of the menu values represented in dB.

Range: -18 to 0 dB

Example: `Audio Output Line 1 Level: -10`

### Audio Output Line [1..6] Channel: <Left/Right/Mono>

Defines whether the Audio Line output is a mono signal or part of a multichannel signal.

Left: The Audio Line output signal is the left channel of a stereo signal.

Right: The Audio Line output signal is the right channel of a stereo signal.

Mono: The Audio Line output signal is a mono signal.

Example: `Audio Output Line 1 Channel: left`

### Audio Output HDMI [1, 3] Mode: <On/Off>

Determines whether or not the audio channel on the HDMI output should be active. Addresses the specific Audio HDMI output.

On: Set to On to enable the audio channel on the HDMI 1 or HDMI 3 output.

Off: Set to On to disable the audio channel on the HDMI 1 or HDMI 3 output.

Example: `Audio Output HDMI 1 mode: On`

### Audio SoundsAndAlerts KeyTones Mode: <On/Off>

Determines whether or not the system should produce a sound every time a key on the remote control is pressed.

On: There will be a sound indicator when pressing keys on the remote control.

Off: The remote control Key Tones is switched off.

Example: `Audio SoundsAndAlerts KeyTones Mode: Off`

### Audio SoundsAndAlerts RingVolume: <0..100>

Defines the volume of the ring tone for an incoming call.

The ring tone volume level bar which is displayed on screen, when using the remote control, goes from 0 to 20.

Range: The ring tone volume goes from 0 to 100

Volum level equals Audio gain value

0 equals 0

1 equals -34.5 dB

70 equals 0.0 dB

100 equals 15.0 dB

Example: `Audio SoundsAndAlerts RingVolume: 50`

### Audio SoundsAndAlerts RingTone: <Marbles/IceCrystals/Polaris/Alert/Discrete/Fantasy/Jazz/Nordic/Echo/Rhythmic>

Defines the ringtone for incoming calls.

Range: Select a tone from the list of ringtones.

Example: `Audio SoundsAndAlerts RingTone: Jazz`

## The Camera settings

### Cameras Camera [1..7] Backlight: <On/Off>

Backlight is used to compensate for lights shining directly at the camera (usually the sun entering the window) to avoid a too dark image from the room. Addresses the specific camera.

On: Set to On to turn on the backlight compensation.

Off: Set to Off to turn the backlight compensation off.

Example: `Cameras Camera 1 Backlight: Off`

### Cameras Camera [1..7] Mirror: <On/Off>

The Mirror mode makes it possible to reverse the the video on screen. Normally you will see yourself in the same view as other people sees you. With mirror enabled the experience will be like looking at yourself in a mirror. Addresses the specific camera.

On: Set to On to see the selfview in mirror mode, e.g. the selfview is reversed and the experience of selfview is as seeing yourself in a mirror.

Off: Set to Off to see the selfview in normal mode, e.g. the experience of selfview is as seeing yourself as other people see you.

Example: `Cameras Camera 1 Mirror: Off`

### Cameras Camera [1..7] Flip: <On/Off>

Applies to cameras which supports Flip mode. Enables the video on screen to be flipped upside down. Addresses the specific camera. TANDBERG PrecisionHD 1080p camera auto detects if the camera is mounted upside down, hence flip mode is not necessary.

On: When set to On the video on screen is flipped. This setting is used with cameras that can be mounted upside down, but cannot auto detect that the camera is mounted upside down.

Off: Set to Off to display the video on screen the normal way.

Example: `Cameras Camera 1 Flip: Off`

### Cameras Camera [1..7] IrSensor: <On/Off>

The Camera IR setting determines whether the infrared receiver at the camera should be enabled or not. The IR sensor LED is located in the front of the camera and flickers when the IR sensor is activated from the remote control. Addresses the specific camera.

On: Set to On to enable the IR sensor on the camera.

Off: Set to Off to disable the IR sensor on the camera.

Example: `Cameras Camera 1 IrSensor: On`

### Cameras Camera [1..7] Brightness Mode: <Auto/Manual>

Define whether to control the camera brightness manually or to have it automatically adjusted by the system. Addresses the specific camera.

Auto: When set to Auto, the camera brightness is automatically set by the system.

Manual: Set to Manual to enable manual control of the camera brightness, e.g. the level of the brightness level setting will be used for the camera.

Example: `Cameras Camera 1 Brightness Mode: auto`

### Cameras Camera [1..7] Brightness Level: <1..31>

Define the Brightness Level for the camera. Requires the Brightness Mode to be set to manual. Addresses the specific camera.

Range: 1-31

Example: `Cameras Camera 1 Brightness Level: 1`

### Cameras Camera [1..7] Whitebalance Mode: <Auto/Manual>

Define whether to control the camera whitebalance manually or to have it automatically adjusted by the system. Addresses the specific camera.

Auto: When set to Auto, the camera will continuously adjust the whitebalance depending on the camera view.

Manual: Set to Manual to enable manual control of the camera whitebalance, e.g. the level of the whitebalance level setting will be used for the camera.

Example: `Cameras Camera 1 Whitebalance Mode: auto`

### Cameras Camera [1..7] Whitebalance Level: <1..16>

Specify which camera to control. Define the Whitebalance Level for the camera. Requires the Whitebalance Mode to be set to manual. Addresses the specific camera.

Range: 1-16

Example: `Cameras Camera 1 Whitebalance Level: 1`

### Cameras Camera [1..7] Focus Mode: <Auto/Manual>

Determines whether the camera should be in auto focus or manual focus mode. Addresses the specific camera.

Auto: When set to Auto the focus will be updated throughout the call. When moving the camera, the system will use auto focus for a few seconds to set the right focus of the new camera position. After a few seconds auto focus is turned off to prevent continuous focus adjustments of the camera.

Manual: If set to Manual the focus is adjusted manually.

Example: `Cameras Camera 1 Focus Mode: auto`

### Cameras Camera [1..7] Gamma Mode: <Auto/Manual>

Applies to cameras which supports Gamma mode. The Gamma Mode setting enables for gamma corrections. Gamma describes the nonlinear relationship between image pixels and monitor brightness. Addresses the specific camera. The TANDBERG PrecisionHD 1080p camera do not need Gamma Mode. The TANDBERG PrecisionHD camera do support Gamma Mode.

Auto: Auto is the default and the recommended setting.

Manual: In severe light conditions, you may switch mode to manual and specify explicitly which gamma table to use by setting the Gamma Level.

Example: `Cameras Camera 1 Gamma Mode: auto`

### Cameras Camera [1..7] Gamma Level: <0..7>

By setting the Gamma Level you can select which gamma correction table to use. This setting may be useful in difficult lighting conditions, where changes to the the brightness setting does not provide satisfactory results. Requires the Gamma Mode to be set to Manual. Addresses the specific camera.

Range: 0-7

Example: `Cameras Camera 1 Gamma Level: 0`

## The Conference settings

### Conference [1..1] AutoAnswer Mode: <On/Off>

The Autoanswer setting determines whether an incoming call is put through automatically or manually.

On: The system will automatically answer all incoming calls.

Off: All incoming call must be answered manually by pressing the OK key or the green Call key on the remote control.

Example: `Conference 1 AutoAnswer Mode: Off`

### Conference [1..1] AutoAnswer Delay: <0..50>

Defines how long (in seconds) an incoming call has to wait before it is answered automatically by the system. Requires the Autoanswer Mode to be enabled.

Range: 0-50 seconds

Example: `Conference 1 AutoAnswer Delay: 0`

### Conference [1..1] IncomingMultisiteCall Mode: <Allow/Deny>

The Incoming Multisite Call setting determines whether or not the system should accept incoming calls to an already active conference.

Allow: When set to Allow, and with an ongoing MCU call/conference, the user can accept another incoming call. This will result in the incoming call being added to the MCU conference.

Deny: The system will not accept incoming calls when you are in a call. The calling side will receive a busy signal.

Example: `Conference 1 IncomingMultisiteCall Mode: Allow`

### Conference [1..1] FarEndControl Mode: <On/Off>

Lets you control if the remote side (far end) should be allowed to select your video sources and control your local camera (pan, tilt, zoom).

On: Set to On when you want the the far end to be able to select your video sources and control your local camera (pan, tilt, zoom). You will still be able to control your camera and select your video sources as normal.

Off: When set to Off the far end can not access any of the features above on your system.

Example: `Conference 1 FarEndControl Mode: On`

### Conference [1..1] Encryption Mode: <Off/BestEffort>

BestEffort: The system will use encryption whenever possible.

In Point to point calls: If the far end system supports encryption (AES-128), the call will be encrypted. If not, the call will proceed without encryption.

In MultiSite calls: In order to have encrypted MultiSite conferences, all sites must support encryption. If not, the conference will be unencrypted.

Icons on screen: A padlock with the text "Encryption On" displays on screen, for a few seconds, when the conference starts.

Off: The system will not use encryption.

Example: `Conference 1 Encryption Mode: BestEffort`

### Conference [1..1] DefaultCall Protocol: <H323/SIP>

Specify the Default Call Protocol to be used when placing calls from the system. The call protocol can also be defined directly for each call when setting up a call.

H.323: Select H.323 to ensure that calls are set up as a H.323 calls.

SIP: Select SIP to ensure that calls are set up as a SIP calls.

Example: `Conference 1 DefaultCall Protocol: H323`

### Conference [1..1] DefaultCall Rate: <64..6000>

Specify the Default Call Rate to be used when placing calls from the system. The call rate can also be defined directly for each call when setting up a call.

Range: 64-6000 kbps

Example: `Conference 1 DefaultCall Rate: 766`

## The Do not disturb setting

### DoNotDisturb Mode: <On/Off>

The Do Not Disturb setting determines whether or not there should be an alert on incoming calls.

On: Set to On when you want no alert to incoming calls. The calling side will receive a busy signal when trying to call the codec.

Off: This is the default setting. The DoNotDisturb is automatically turned Off if the codec receives any IR signal from the handheld remote control.

Example: `DoNotDisturb Mode: Off`

## The H323 Profile settings

### H323 Profile [1..1] PortAllocation: <Dynamic/Static>

The H.323 Port Allocation setting affects the H.245 port numbers used for H.323 call signalling.

Dynamic: The system will allocate which ports to use when opening a TCP connection. The reason for doing this is to avoid using the same ports for subsequent calls, as some firewalls consider this as a sign of attack. When Dynamic is selected, the H.323 ports used are from 11000 to 20999. Once 20999 is reached they restart again at 11000. For RTP and RTCP media data, the system is using UDP ports in the range 2326 to 2487. Each media channel is using two adjacent ports, ie 2330 and 2331 for RTP and RTCP respectively. The ports are automatically selected by the system within the given range. Firewall administrators should not try to deduce which ports are used when, as the allocation schema within the mentioned range may change without any further notice.

Static: When set to Static the ports are given within a static predefined range [5555–6555].

Example: `H323 Profile 1 PortAllocation: Dynamic`

### H323 Profile [1..1] H323Alias ID: <S: 0, 49>

Lets you specify the H.323 Alias ID which is used to address the system on a H.323 Gatekeeper and will be displayed in the call lists. Example: "name.surname@company.com", "My H.323 Alias ID"

Format: String with a maximum of 49 characters

Example: `H323 Profile 1 H323Alias ID: ""`

### H323 Profile [1..1] H323Alias E164: <S: 0, 30>

The H.323 Alias E.164 defines the address of the system, according to the numbering plan implemented in the H.323 Gatekeeper. The E.164 alias is equivalent to a telephone number, sometimes combined with access codes. Example: "9047615901", ""550092"

Format: Compact string with a maximum of 30 characters. Valid characters are 0–9, * and #.

Example: `H323 Profile 1 H323Alias E164: ""`

### H323 Profile [1..1] CallSetup Mode: <Direct/Gatekeeper>

The H.323 Call Setup Mode defines whether to use a Gatekeeper or Direct calling when establishing H323 calls.

Direct: An IP-address must be used when dialling in order to make the H323 call.

Gatekeeper: The system will use a Gatekeeper to make a H.323 call. When selecting this option the H323 Profile Gatekeeper Address and H323 Profile Gatekeeper Discovery settings must also be configured.

NOTE! Direct H.323 calls can be made even though the H.323 Call Setup Mode is set to Gatekeeper.

Example: `H323 Profile 1 CallSetup Mode: Gatekeeper`

### H323 Profile [1..1] Gatekeeper Address: <S: 0, 64>

Specifies the IP address of the Gatekeeper. Requires the H.323 Call Setup Mode to be set to Gatekeeper and the Gatekeeper Discovery to be set to Manual.

Format: String with a maximum of 64 characters.

Example: `H323 Profile 1 Gatekeeper Address: "10.47.1.58"`

### H323 Profile [1..1] Gatekeeper Discovery: <Manual/Auto>

Determines how the system shall register to a H.323 Gatekeeper.

Manual: The system will use a specific Gatekeeper identified by the Gatekeeper's IP-address.

Auto: The system will automatically try to register to any available Gatekeeper. If a Gatekeeper responds to the request sent from the codec within 30 seconds this specific Gatekeeper will be used. This requires that the Gatekeeper is in auto discovery mode as well. If no Gatekeeper responds, the system will not use a Gatekeeper for making H.323 calls and hence an IP-address must be specified manually.

Example: `H323 Profile 1 Gatekeeper Discovery: Manual`

### H323 Profile [1..1] Authentication LoginName: <S: 0, 50>

The system sends the Authentication Login Name and the Authentication Password to a H.323 Gatekeeper for authentication. The authentication is a one way authentication from the codec to the H.323 Gatekeeper, i.e. the system is authenticated to the gatekeeper. If the H.323 Gatekeeper indicates that no authentication is required, the system will still try to register. Requires the H.323 Gatekeeper Authentication Mode to be enabled.

Format: String with a maximum of 50 characters.

Example: `H323 Profile 1 Authentication Loginname: ""`

### H323 Profile [1..1] Authentication Password: <S: 0, 50>

The system sends the Authentication Login Name and the Authentication Password to a H.323 Gatekeeper for authentication. The authentication is a one way authentication from the codec to the H.323 Gatekeeper, i.e. the system is authenticated to the gatekeeper. If the H.323 Gatekeeper indicates that no authentication is required, the system will still try to register. Requires the H.323 Gatekeeper Authentication Mode to be enabled.

Format: String with a maximum of 50 characters.

Example: `H323 Profile 1 Authentication Password:`

### H323 Profile [1..1] Authentication Mode: <On/Off>

On: If the H.323 Gatekeeper Authentication Mode is set to On and a H.323 Gatekeeper indicates that it requires authentication, the system will try to authenticate itself to the gatekeeper. Requires the Authentication ID and Authentication Password to be defined on both the codec and the Gatekeeper.

Off: If the H.323 Gatekeeper Authentication Mode is set to Off the system will not try to authenticate itself to a H.323 Gatekeeper, but will still try a normal registration.

Example: `H323 Profile 1 Authentication Mode: Off`

## The Network settings

### Network [1..1] Assignment: <Static/DHCP>

Defines whether to use DHCP or Static IP assignment.

Static: The IP Address, Subnet Mask and Default Gateway for the system must be specified in the respective address fields.

DHCP: The system adresses are automatically assigend by the DHCP server.

Changes to this setting requires a restart of the codec.

Example: `Network 1 Assignment: DHCP`

### Network [1..1] IPv4 Address: <S: 0, 64>

Defines the Static IP address for the system. Only applicable if Static IP assignment is chosen.

Format: Compact string with a maximum of 64 characters.

Example: `Network 1 IPv4 Address: "10.47.5.100"`

### Network [1..1] IPv4 SubnetMask: <S: 0, 64>

Defines the IP subnet mask. Only applicable if Static IP assignment is chosen.

Format: Compact string with a maximum of 64 characters.

Example: `Network 1 IPv4 SubnetMask: "255.255.255.0"`

### Network [1..1] IPv4 Gateway: <S: 0, 64>

Defines the IP default gateway. Only applicable if Static IP assignment is chosen.

Format: Compact string with a maximum of 64 characters.

Example: `Network 1 IPv4 Gateway: "10.47.5.100"`

### Network [1..1] IPv4 QoS Mode: <Off/Diffserv>

Defines whether IP Diffserv QoS should be used. The QoS (Quality of Service) is a method which handles the priority of audio, video and data in the network. The QoS settings must be supported by the infrastructure. DiffServ (Differentiated Services) is a computer networking architecture that specifies a simple, scalable and coarse-grained mechanism for classifying, managing network traffic and providing QoS priorities on modern IP networks.

Off: When set to Off no QoS method is used.

Diffserv: Select Diffserv and then go to the Diffserv sub-menus (Audio, Data, Signalling and Video) to configure these settings.

Example: `Network 1 IPv4 QoS Mode: diffserv`

### Network [1..1] IPv4 QoS Diffserv Audio: <0..63>

The DiffServ Audio setting is used to define which priority Audio packets should have in an IP network. Enter a priority, which ranges from 0 to 63 for the packets. The higher the number, the higher the priority. These priorities might be overridden when packets are leaving the network controlled by the local network administrator.

Audio: A recommended value is DiffServ Code Point (DSCP) is AF41, which equals the value 34. If in doubt, contact your network administrator.

Range: 0-63

Example: `Network 1 IPv4 QoS Diffserv Audio: 0`

### Network [1..1] IPv4 QoS Diffserv Data: <0..63>

The DiffServ Data setting is used to define which priority Data packets should have in an IP network. Enter a priority, which ranges from 0 to 63 for the packets. The higher the number, the higher the priority. These priorities might be overridden when packets are leaving the network controlled by the local network administrator.

Data: A recommended value is DiffServ Code Point (DSCP) AF23, which equals the value 22. If in doubt, contact your network administrator.

Range: 0-63

Example: `Network 1 IPv4 QoS Diffserv Data: 0`

### Network [1..1] IPv4 QoS Diffserv Signalling: <0..63>

The DiffServ Signalling setting is used to define which priority Signalling packets should have in an IP network. Enter a priority, which ranges from 0 to 63 for the packets. The higher the number, the higher the priority. These priorities might be overridden when packets are leaving the network controlled by the local network administrator.

Signalling: A recommended value is DiffServ Code Point (DSCP) AF31 which equals the value 26. If in doubt, contact your network administrator.

Range: 0-63

Example: `Network 1 IPv4 QoS Diffserv Signalling: 0`

### Network [1..1] IPv4 QoS Diffserv Video: <0..63>

The DiffServ Video setting is used to define which priority Video packets should have in an IP network. Enter a priority, which ranges from 0 to 63 for the packets. The higher the number, the higher the priority. These priorities might be overridden when packets are leaving the network controlled by the local network administrator.

Video: A recommended value is DiffServ Code Point (DSCP) AF41, which equals the value 34. If in doubt, contact your network administrator.

Range: 0-63

Example: `Network 1 IPv4 QoS Diffserv Video: 0`

### Network [1..1] DNS Server [1..5] Address: <S: 0, 64>

Defines the network addresses for DNS servers. Up to 5 addresses may be specified. If the network addresses are unknown, please contact your administrator or Internet Service Provider.

Format: String with a maximum of 64 characters.

Example: `Network 1 DNS Server [1..5] Address: ""`

### Network [1..1] DNS Domain Name: <S: 0, 64>

DNS Domain Name is the default domain name suffix which is added to unqualified names.

Example: If the DNS Domain Name is "company.com" and the name to lookup is "MyVideoSystem", this will result in the DNS lookup "MyVideoSystem.company.com".

Format: String with a maximum of 64 characters.

Example: `Network 1 DNS Domain Name: "company.com"`

## The Network services settings

### NetworkServices Telnet Mode: <On/Off>

Telnet is a network protocol used on the Internet or local area network (LAN) connections.

On: The Telnet protocol is enabled.

Off: The Telnet protocol is disabled. This is the default factory setting.

Example: `NetworkServices Telnet Mode: Off`

### NetworkServices HTTP Mode: <On/Off>

HTTP is a web-interface for system management, call management such as call transfer, diagnostics and software uploads.

On: The HTTP protocol is enabled.

Off: The HTTP protocol is disabled.

Example: `NetworkServices HTTP Mode: On`

### NetworkServices HTTPS Mode: <On/Off>

HTTPS is a Web protocol that encrypts and decrypts user page requests as well as the pages that are returned by the Web server.

On: The HTTPS protocol is enabled.

Off: The HTTPS protocol is disabled.

Example: `NetworkServices HTTPS Mode: On`

### NetworkServices SNMP Mode: <Off/ReadOnly/ReadWrite>

SNMP (Simple Network Management Protocol) is used in network management systems to monitor network-attached devices (routers, servers, switches, projectors, etc) for conditions that warrant administrative attention. SNMP exposes management data in the form of variables on the managed systems, which describe the system configuration. These variables can then be queried (set to ReadOnly) and sometimes set (set to ReadWrite) by managing applications.

Off: Set to Off when you want to disable the SNMP network service.

ReadOnly: Set to ReadOnly when you want to enable the SNMP network service for queries only.

ReadWrite: Set to ReadOnly when you want to enable the SNMP network service for both queries and commands.

Example: `NetworkServices SNMP Mode: ReadWrite`

### NetworkServices SNMP CommunityName: <S: 0, 50>

Enter the name of the Network Services SNMP Community. SNMP Community names are used to authenticate SNMP requests. SNMP requests must have a 'password' (case sensitive) in order to receive a response from the SNMP Agent in the codec. The default password is "public". If you have the TANDBERG Management Suite (TMS) you must make sure the same SNMP Community is configured there too. Note! The SNMP Community password is case sensitive.

Format: String with a maximum of 50 characters.

Example: `NetworkServices SNMP CommunityName: "public"`

### NetworkServices SNMP SystemContact: <S: 0, 50>

Enter the name of the Network Services SNMP System Contact.

Format: String with a maximum of 50 characters.

Example: `NetworkServices SNMP SystemContact: ""`

### NetworkServices SNMP SystemLocation: <S: 0, 50>

Enter the name of the Network Services SNMP System Location.

Format: String with a maximum of 50 characters.

Example: `NetworkServices SNMP SystemLocation: ""`

### NetworkServices SNMP HostIpAddress [1..3]: <S: 0, 64>

Enter the IP address of up to three SNMP Managers. All traps will then be sent to the hosts listed.

The system's SNMP Agent (in the codec) responds to requests from SNMP Managers (a PC program etc.). SNMP Traps are generated by the SNMP Agent to inform the SNMP Manager about important events. Can be used to send event created messages to the SNMP agent about different events like: system reboot, system dialing, system disconnecting, MCU call, packet loss etc. Traps can be sent to multiple SNMP Trap Hosts.

Format: String with a maximum of 64 characters.

Example: `NetworkServices SNMP HostIpAddress 1: ""`

### NetworkServices H323 Mode: <On/Off>

Determines whether the system should be able to place and receive H.323 calls.

On: Set to On to enable the possibility to place and receive H.323 calls.This is the default setting.

Off: Set to Off to disable the possibility to place and receive H.323 calls.

NOTE! Changes in this setting requires the codec to be restarted.

Example: `NetworkServices H323 Mode: On`

### NetworkServices SIP Mode: <On/Off>

Determines whether the system should be able to place and receive SIP calls.

On: Set to On to enable the possibility to place and receive SIP calls.This is the default setting.

Off: Set to Off to disable the possibility to place and receive SIP calls.

NOTE! Changes in this setting requires the codec to be restarted.

Example: `NetworkServices SIP Mode: On`

### NetworkServices NTP Mode: <Auto/Manual>

The Network Time Protocol (NTP) is used to synchronize the time of the system to a reference time server. The time server will subsequently be queried every 24th hour for time updates. The time will be displayed on the top of the screen. The system will use the time to timestamp messages transmitted to Gatekeepers or Border Controllers requiring H.235 authentication. The system will use the time to timestamp messages transmitted to Gatekeepers or Border Controllers that requires H.235 authentication. It is also used for timestamping Placed Calls, Missed Calls and Received Calls.

Auto: The system will use the NTP server, by which address is supplied from the DHCP server in the network. If no DHCP server is used, or the DHCP server does not provide the system with a NTP server address, the system will use the static defined NTP server address specified by the user.

Manual: The system will always use the static defined NTP server address specified by the user.

Example: `NetworkServices NTP Mode: Manual`

### NetworkServices NTP Address: <S: 0, 64>

Enter the NTP Address to define the network time protocol server address. This address will be used if NTP Mode is set to Manual, or if set to Auto and no address is supplied by a DHCP server.

Format: String with a maximum of 64 characters.

Example: `NetworkServices NTP Address: "1.tandberg.pool.ntp.org"`

## The Phone book server settings

### Phonebook Server [1..5] ID: <S: 0, 64>

Enter a name for the external phonebook. Addresses the specific phonebook.

Format: String with a maximum of 64 characters.

Example: `Phonebook Server 1 ID: ""`

### Phonebook Server [1..5] URL: <S: 0, 255>

Enter the address (URL) to the external phonebook server. Addresses the specific phonebook server.

Format: String with a maximum of 255 characters.

Example: `Phonebook Server 1 URL: "http://tms.company.com/tms/public/external/phonebook/phonebook.asmx"`

## The Provisioning settings

### Provisioning Mode: <Off/TMS>

Provides the possibility of managing the codec (endpoint) by using an external manager/management system.

Off: The system will not try to register to any management system.

TMS: If set to TMS the system will try to register with a TMS server as described in Provisioning ExternalManager settings. TMS is short for TANDBERG Management System. Please contact your TANDBERG representative for more information.

Example: `Provisioning Mode: TMS`

### Provisioning ExternalManager Address: <S: 0, 64>

If an External Manager address and a path is configured, the system will post an HTTP message to this address when starting up. When receiving this HTTP posting the External Manager (typically a management system) can return configurations/commands to the unit as a result. If the DHCP Option 242 is returned in the DHCP response from the DHCP server the system will interpret this as the External Manager address to use.

Specifies the IP Address to the External Manager/Management system.

Format: String with a maximum of 64 characters.

Example: `Provisioning ExternalManager Address: ""`

### Provisioning ExternalManager Protocol: <HTTP/HTTPS>

Determines whether or not to use secure management.

HTTP: Set to HTTP to disable secure management. Requires HTTP to be enabled in the Network Services HTTP Mode setting.

HTTPS: Set to HTTPS to enable secure management. Requires HTTPS to be enabled in the Network Services HTTPS Mode setting.

Example: `Provisioning ExternalManager Protocol: http`

### Provisioning ExternalManager Path: <S: 0, 255>

If an External Manager address and a path is configured, the system will post an HTTP message to this address when starting up. When receiving this HTTP posting the External Manager (typically a management system) can return configurations/commands to the unit as a result. If the DHCP Option 242 is returned in the DHCP response from the DHCP server the system will interpret this as the External Manager address to use.

Specifies the path to the External Manager/Management system.

Example: tms/public/external/management/SystemManagementService.asmx

Format: String with a maximum of 255 characters.

Example: `Provisioning ExternalManager Path: ""`

## The Serial port settings

### SerialPort BaudRate: <9600/19200/38400/115200>

Specify the baud rate (bps) on the COM port (data port). The default value is 38400.

Other default parameters for the COM port are: Parity: None Databits: 8 Stopbits: 1 Flow control: None.

Valid inputs for baud rate: 9600, 19200, 38400, 115200

Example: `SerialPort BaudRate: 38400`

### SerialPort LoginRequired: <On/Off>

The Serial Login setting determines whether or not there should be a login when connecting to the COM port (data port).

On: Login is required when connecting to the COM port (data port).

Off: The user can access the COM port (data port) without any login.

Example: `SerialPort LoginRequired: Off`

## The SIP Profile settings

### SIP Profile [1..1] URI [1..1]: <S: 0, 255>

The SIP URI or number is used to address the system. This is the URI that is registered and used by the SIP services to route inbound calls to the system. A Uniform Resource Identifier (URI) is a compact string of characters used to identify or name a resource.

Example: "sip:name@example.com", "1234", "1234@example.com"

Format: Compact string with a maximum of 255 characters.

Example: `SIP Profile 1 URI 1: "sip:name@example.com"`

### SIP Profile [1..1] DefaultTransport: <UDP/TCP/TLS/Auto>

Select the transport protocol to be used over the LAN.

UDP: The system will always use UDP as the default transport method.

TCP: The system will always use TCP as the default transport method.

TLS: The system will always use TLS as the default transport method. For TLS connections a SIP CA-list can be uploaded using the web interface. If no such CA-list is available on the system then anonymous Diffie Hellman will be used.

Auto: The system will try to connect using transport protocols in the following order: TLS, TCP, UDP.

Example: `SIP Profile 1 DefaultTransport: Auto`

### SIP Profile [1..1] TlsVerify: <On/Off>

For TLS connections a CA-list can be uploaded from the web interface.

On: Set to On to verify TLS connections. Only TLS connections to servers, whom x.509 certificate is validated against the CA-list, will be allowed.

Off: Set to Off to allow TLS connections without verifying them. The TLS connections are allowed to be set up without verifying the x.509 certificate received from the server against the local CA-list. This should typically be selected if no SIP CA-list has been uploaded.

Example: `SIP Profile 1 TlsVerify: Off`

### SIP Profile [1..1] Type: <Auto/Nortel/Microsoft/Cisco/Alcatel/Experimental/Avaya/Siemens>

Enables SIP extensions and special behaviour for a vendor or provider

Auto: Should be used when registering to standard SIP proxy like OpenSer.

Nortel: Must be used when registering to a Nortel MCS 5100 or MCS 5200 PBX.

Microsoft: Must be used when registering to a Microsoft LCS or OCS server.

Cisco: Must be used when registering to a Cisco CallManager version 5 or later.

Alcatel: Must be used when registering to a Alcatel-Lucent OmniPCX Enterprise R7 or later.

Siemens: Must be used when registering to a Siemens HiPath 8000.

Telio: Must be used in combination with a Telio subscription (www.telio.no).

Experimental: Can be used if auto is not working Note! This mode is for testing purposes only.

Example: `SIP Profile 1 Type: Auto`

### SIP Profile [1..1] Proxy [1..1] Discovery: <Auto/Manual>

Manual: When Manual is selected, the manually configured SIP Proxy address will be used

Auto: When Auto is selected, the SIP Proxy address is obtained using Dynamic Host Configuration Protocol (DHCP).

Example: `SIP Profile 1 Proxy 1 Discovery: Manual`

### SIP Profile [1..1] Proxy [1..1] Address: <S: 0, 255>

The Proxy Address is the manually configured address for the outbound proxy. It is possible to use a fully qualified domain name, or an IP address. The default port is 5060 for TCP and UDP but another one can be provided.

Format: Compact string with a maximum of 255 characters.

Example: `SIP Profile 1 Proxy 1 Address: ""`

### SIP Profile [1..1] Authentication [1..1] LoginName: <S: 0, 50>

This is the user name part of the credentials used to authenticate towards the SIP proxy.

Format: String with a maximum of 50 characters.

Example: `SIP Profile 1 Authentication 1 LoginName: ""`

### SIP Profile [1..1] Authentication [1..1] Password: <S: 0, 50>

This is the password part of the credentials used to authenticate towards the SIP proxy.

Format: String with a maximum of 50 characters.

Example: `SIP Profile 1 Authentication 1 Password:`

## The Standby settings

### Standby Control: <On/Off>

The Standby Control setting determines whether the system should go into standby mode or not.

On: The system will go into standby mode when the Standby Delay has timed out. Requires the Standby Delay to be set to an appropriate value.

Off: The system will not go into standby.

Example: `Standby Control: On`

### Standby Delay: <1..480>

Defines how long (in seconds) the system will wait before it goes into standby mode. Requires the Standby Control to be enabled.

Range: 1-480 seconds

Example: `Standby Delay: 10`

## The System unit settings

### SystemUnit Name: <S: 0, 50>

Enter a System Name to define a name of the system unit. If the H.323 Alias ID is configured on the system then this ID will be used instead of the system name. The system name will be displayed:

* When the codec is acting as an SNMP Agent

* Towards a DHCP server

Format: String with a maximum of 50 characters.

Example: `SystemUnit Name: "Meeting Room Name"`

### SystemUnit IrSensor Mode: <On/Off/Auto>

The System Unit IR Sensor setting determines whether the infrared receiver on the codec should be enabled or not. The IR sensor LED is located in the front of the codec and flickers when an ir signal is received from the remote control.

On: Set to On to enable the IR sensor on the codec.

Off: Set to Off to disable the IR sensor on the codec.

Auto: The system will automatically disable the IR sensor on the codec if the IR sensor at camera is enabled. Otherwise the IR sensor on the codec will be enabled.

Example: `SystemUnit IrSensor Mode: On`

## The Time zone setting

### Time Zone: <S: 0, 100>

Specifies the NTP time zone where the system is located. See a list of the valid NTP Time Zone expressions in the Appendices section.

Format: String with a maximum of 100 characters.

Example: `Time Zone: "Etc./UTC"`

## The Video settings

### Video Selfview: <On/Off>

The Video Selfview setting determines whether or not the main video source (selfview) should be displayed on screen.

On: Set to On when you want selfview to be displayed on screen.

Off: Set to Off when you do not want selfview to be displayed on screen.

Example: `Video Selfview: On`

### Video WallPaper: <Summersky/Growing/None>

The Video Wallpaper setting determines whether or not a background picture should be displayed on screen.

Summersky, Growing: Select the wallpaper to be displayed on screen.

None: Set to None when you do not want a wallpaper to be displayed on screen.

Example: `Video Selfview: None`

### Video MainVideoSource: <1..5>

Define which video input source shall be used as the main video source. The input source is configured to a video input connector. See the Video Input Matrix table at the back of the codec and the description of the Video Input Matrix in the Interfaces section.

Range: 1-5 video sources

Example: `Video MainVideoSource: 1`

### Video DefaultPresentationSource: <1..5>

Define which video input source shall be used as the default presentation source (e.g. when you press the Presentation key on the remote control). The input source is configured to a video input connector. See the Video Input Matrix table at the back of the codec and the description of the Video Input Matrix in the Interfaces section.

Range: 1-5 presentation sources

Example: `Video DefaultPresentationSource: 3`

### Video Monitors: <Single/Dual>

The codec can be used with more than one monitor and this setting lets you set the codec's monitor layout mode to Single or Dual. The dual output is provided on HDMI output 3.

Single: The same layout is shown on all monitors.

Dual: The layout is distributed on two monitors.

Example: `Video Monitors: Single`

### Video OSD Mode: <On/Off>

The Video OSD (On Screen Display) Mode lets you define whether or not information and icons on screen should be displayed.

On: Set to On to display the on screen menus, icons and indicators (microphone on/off, encryption on/off).

Off: Set to Off to hide the on screen menus, icons and indicators (microphone on/off, encryption on/off).

Example: `Video OSD Mode: On`

### Video OSD Output: <1..4>

The Video OSD (On Screen Display) Output lets you define which monitor should display the on screen menus, information and icons.

Range: Monitor 1-4

Example: `Video OSD Output: 1`

### Video Input Source [1..5] CameraControl Mode: <On/Off>

Determines whether or not the camera control should be enabled for the specific video input source. Addresses the specific video input source.

On: Set to On to enable camera control for the camera connected to the selected video input connector.

Off: Set to Off to disable camera control for the camera connected to the selected video input connector.

Example: `Video Input Source 1 CameraControl Mode: On`

### Video Input Source [1..5] CameraControl CameraId: <1..5>

Select the ID of the camera in the Visca chain that is connected to this camera source. The CameraId setting represents the camera's position in the Visca chain. Addresses the specific video input source.

Cascaded cameras and Visca commands are described in the PrecisionHD 1080p User Guide. The user guide is found at www.tandberg.com/docs

Example: `Video Input Source 1 CameraControl CameraId: 1`

### Video Input Source [1..5] Name: <S: 0, 50>

Customizable name of the connector group. Enter the name of the video input source 1-5.

Format: String with a maximum of 50 characters.

Example: `Video Input Source 1 Name: ""`

### Video Input Source 1 Connector: <HDMI/HDSDI/YPbPr>

Select which video input connector to be active on connector group 1

HDMI: Select HDMI when you want to use the HDMI 1 connector as input

HDSDI: Select HD-SDI when you want to use the HD-SDI 1 connector as input

YPbPr: Select YPbPr when you want to use the Y-Pb-Pr (Component) 1 connectors as input

Example: `Video Input Source 1 Connector: HDMI`

### Video Input Source 2 Connector: <HDMI/HDSDI/YPbPr>

Select which video input connector to be active on connector group 2

HDMI: Select HDMI when you want to use the HDMI 2 connector as input

HDSDI: Select HD-SDI when you want to use the HD-SDI 2 connector as input

YPbPr: Select YPbPr when you want to use the Y-Pb-Pr (Component) 2 connectors as input

Example: `Video Input Source 2 Connector: HDMI`

### Video Input Source 3 Connector: <HDMI/HDSDI/DVI>

Select which video input connector to be active on connector group 3

HDMI: Select HDMI when you want to use the HDMI 3 connector as input

HDSDI: Select HD-SDI when you want to use the HD-SDI 3 connector as input

DVI: Select DVI-I when you want to use the DVI-I 3 connector as input

Example: `Video Input Source 3 Connector: DVI`

### Video Input Source 4 Connector: <HDMI/HDSDI>

Select which video input connector to be active on connector group 4

HDMI: Select HDMI when you want to use the HDMI 4 connector as input

HDSDI: Select HD-SDI when you want to use the HD-SDI 4 connector as input

Example: `Video Input Source 4 Connector: HDMI`

### Video Input Source 5 Connector: <YC/Composite/DVI>

Select which video input connector to be active on connector group 5

YC: Select YC when you want to use the S-Video (YC) input. Connect the S-Video input to the connector marked as Y/Comp and C. NOTE! This configuration is not supported in version 1.

Composite: Select Comp when you want to use the Composite input. Connect the Composite input to the connector marked as Y/Comp NOTE! This configuration is not supported in version 1.

DVI: Select DVI-I when you want to use the DVI-I 5 connector as input.

Example: `Video Input Source 5 Connector: DVI`

### Video Input Source [1..5] Quality: <Motion/Sharpness>

When encoding and transmitting video there will be a tradeoff between high resolution and high framerate. For some video sources it is more important to transmit high framerate than high resolution and vice versa. The Quality setting specifies whether to give priority to high frame rate or to high resolution for a given source. Addresses the selected video input connector.

Motion: Gives the highest possible framerate. Used when there is a need for higher frame rates, typically when a large number of participants are present or when there is a lot of motion in the picture.

Sharpness: Gives the highest possible resolution. Used when you want the highest quality of detailed images and graphics.

Example: `Video Input Source 1 HDMI 1 Quality: Motion`

### Video Output HDMI [1, 3] Resolution: <640_480_60/800_600_60/1024_768_60/1280_1024_60/1280_720_60/1920_1080_60/1280_768_60/1360_768_60/1366_768_60>

Select the preferred resolution for the monitor connected to video output HDMI 1 or 3. This will force the selected resolution on the monitor.

Range: 640x480@60p, 800x600@60p, 1024x768@60p, 1280x1024@60p, 1280x720@60p, 1920x1080@60p, 1280x768@60p, 1360x768@60p, 1366x768@60p

Example: `Video Output HDMI 1 Resolution: 1920_1080_60`

### Video Output DVI [2, 4] Resolution: <640_480_60/800_600_60/1024_768_60/1280_1024_60/1280_720_60/1920_1080_60/1280_768_60/1360_768_60/1366_768_60>

Select the preferred resolution for the monitor connected to video output DVI-I 2 or 4. This will force the selected resolution on the monitor.

Range: 640x480@60p, 800x600@60p, 1024x768@60p, 1280x1024@60p, 1280x720@60p, 1920x1080@60p, 1280x768@60p, 1360x768@60p, 1366x768@60p

Example: `Video Output DVI 2 Resolution: 1920_1080_60`

### Video Output Composite [5] Resolution: <PAL/NTSC>

Select the preferred resolution for the monitor connected to video output composite 1. This will force the selected resolution on the monitor.

Range: PAL, NTSC

Example: `Video Output Composite 5 Resolution: NTSC`

## The Experimental menu

The Advanced configurations menu has an option called Experimental. The settings within this menu can be used 'as is' and will not be documented.

**NOTE!** The Experimental menu WILL change.

We recommend you visit the TANDBERG web site regularly for updated versions of the manual.
Go to: ▶ http://www.tandberg.com/docs

# Chapter 6

# Cameras

Your TANDBERG PrecisionHD 1080p Camera has been designed to give you many years of safe, reliable operation.

Additional information about the camera is found in the TANDBERG PrecisionHD 1080p User Guide.

## In this chapter...


- The PrecisionHD 1080p camera
- Connecting the camera
- Best view—Face recognition
- Video output formats
- Cameras in daisy chain


www.tandberg.com

TANDBERG See: green

# The PrecisionHD 1080p camera

**Video out (HDMI, HD-SDI).** For video signals, connect from the video out on the camera to the video in on the codec.

**Power and camera control.** For power in and camera control, connect from the camera control & power on the camera to the Camera port on the codec. When the camera is used with TANDBERG codecs power will be supplied through Camera Control cable. When used with non-TANDBERG Codecs, you may have to connect power separately.

## HDMI and HD-SDI

- HDMI is the main source for video out when connected to Codec C90. Maximum resolution is 1080p60.
- HD-SDI is the secondary source for video. Maximum resolution is 1080p30.
- The HDMI and HD-SDI can be used simultaneously. The maximum resolution is then 1080p30 if you want both to run with the same resolution.

## Kensington lock

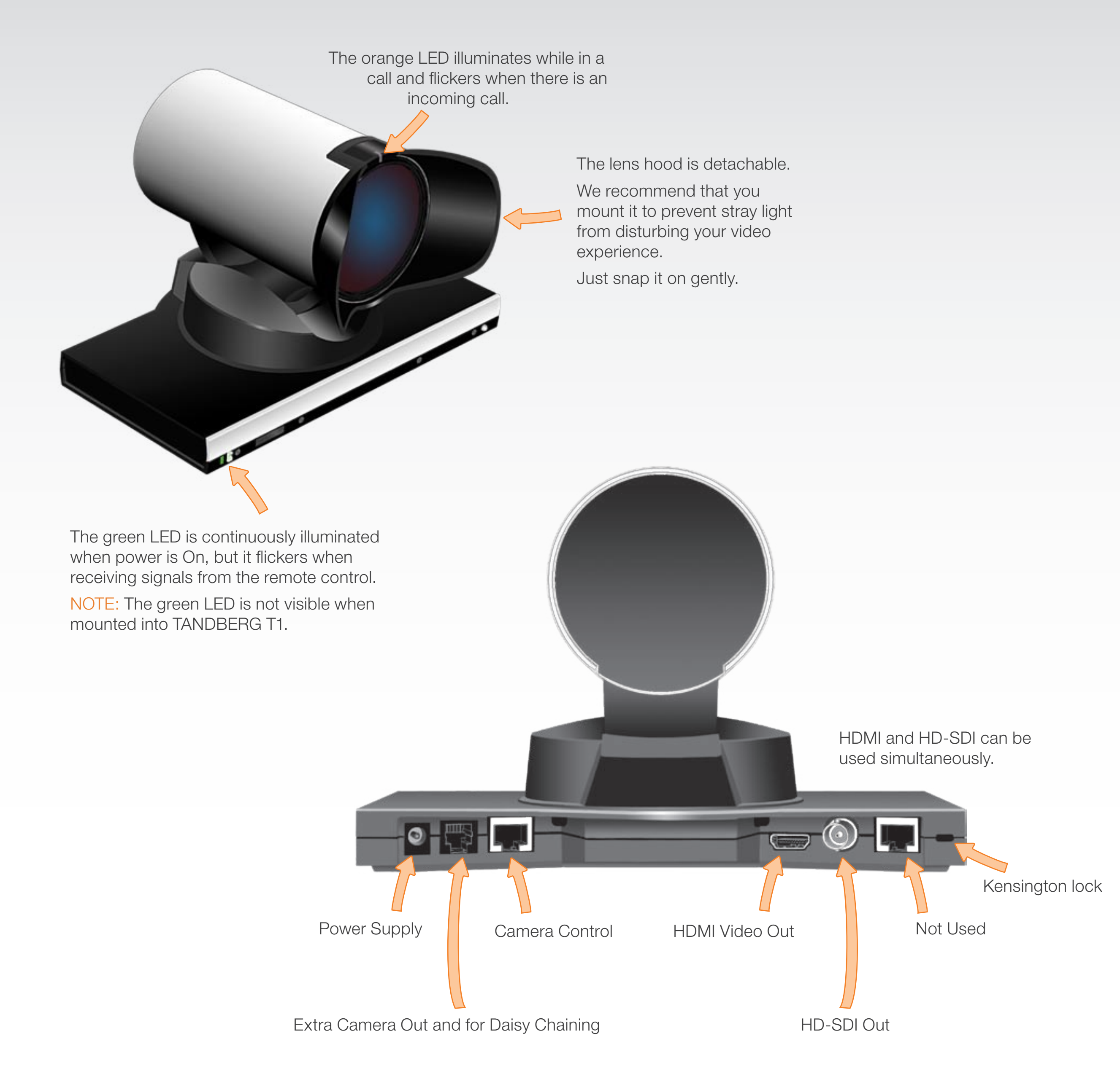
The Kensington lock may be used to prevent the camera to be moved from its place or to prevent theft.

## Cascaded cameras

The sockets named Extra Camera Out and Power In are used when connecting cameras in daisy chain.

- The first camera in the chain is powered up by the camera control cable. The next cameras must use the 12V DC Power in.
- The daisy chained cameras are connected by using an extra camera cable between the Extra Camera sockets.

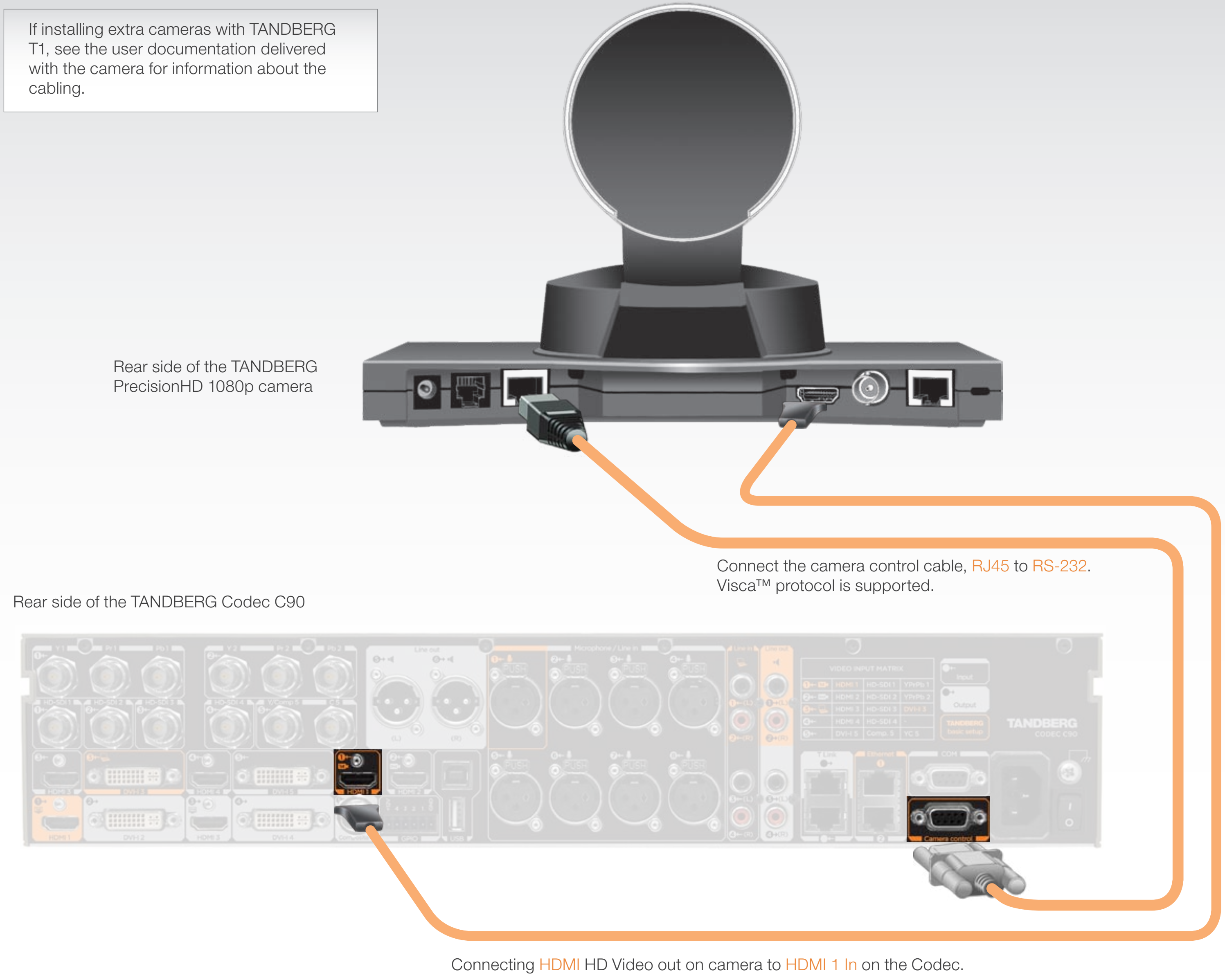
See the TANDBERG PrecisionHD 1080p User Guide for comprehensive information about the camera.
Go to: ▶ http://www.tandberg.com/docs



## Connecting the camera

The HDMI cable is pre-mounted in TANDBERG T1.

If installing extra cameras with TANDBERG T1, see the user documentation delivered with the camera for information about the cabling.




VISCA™ is a trademark of Sony Corporation

# Best view—Face recognition

This camera is capable of face recognition when used with TANDBERG C90 Codecs. Consequently, the functionality is subject to change without further notice in order to take advantage of further developments.

NOTE: Observe that the **Best view** feature is still a preview feature.

The face recognition system aims to search for faces in order to optimize the picture frame, hence the name **Best view**. Once a face or group of faces has been detected camera zoom and camera angle will be changed accordingly to obtain an optimal presentation on the screen.

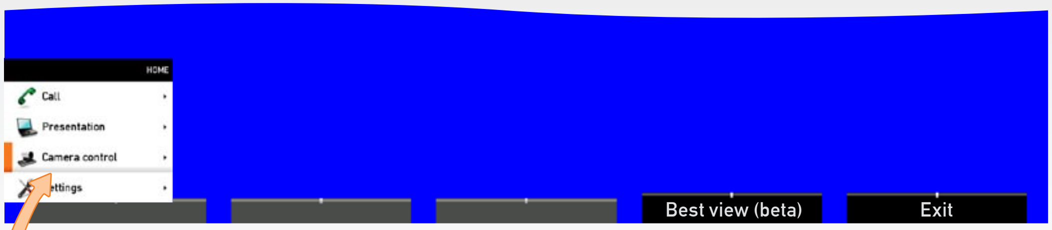
**Kindly observe the following:**

- The **Best view** optimization process may take up to 5 seconds.
- The detection of faces works better when people look towards the camera.
- The area from the eyebrows down to just below the lips should be uncovered.
- Beard is normally not a problem.

## Using Best view

Note that **Best view** works with TANDBERG C90 Codecs only!

1. Press the **Layout** key on the remote control to display the Layout menu. Select **Selfview** to be shown as required.
2. Press the **Home** key on the remote control to display the Home menu and select **Camera control**
3. In the Camera control menu, locate the **Best view** button at the bottom of the screen.
4. Press the corresponding **Soft** key on the remote control to start the **Best view** optimization process. Look towards the camera for about five seconds.
5. The system will now look for human faces and adjust the zoom and camera angle to obtain a best fit.




The **Best view** feature is found in the **Camera control** menu.

Press the corresponding **Soft** key to start the Best View optimization process.

Remote control
TANDBERG TRC5

# Video output formats

This section describes the video output formats for the TANDBERG PrecisionHD 1080p camera.

## DIP switch settings for video output formats

The video output format for the camera is set by DIP switches. The DIP switches are found on the bottom side of the camera.

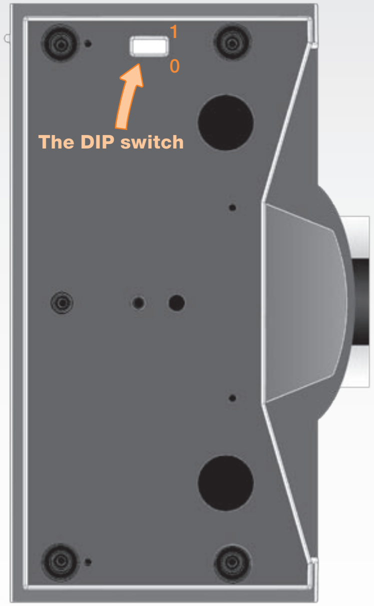
The default setting is Auto. When using HDMI, the video output format is automatically detected. See the table to the right.

Maximum resolution for HDMI is 1080p60.

Maximum resolution for HD-SDI is 1080p30.

## Line voltage frequency

The camera will automatically detect the line voltage frequency when it is 50 or 60 Hz. You may set the video output format to a specific value (use the DIP switches) to override the auto frequency detection, if a different line voltage frequency is an issue.




Bottom side of the TANDBERG PrecisionHD 1080p camera

**DIP Switch table for video formats**

| 1 | 2 | 3 | 4 | 5 | HDMI | HD-SDI |
|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | Auto | |
| 0 | 0 | 0 | 0 | 1 | 1920x1080p25 | 1920x1080p25 |
| 0 | 0 | 0 | 1 | 0 | 1920x1080p30 | 1920x1080p30 |
| 0 | 0 | 0 | 1 | 1 | 1920x1080p50 | 1280x720p50 |
| 0 | 0 | 1 | 0 | 0 | 1920x1080p60 | 1280x720p60 |
| 0 | 0 | 1 | 0 | 1 | 1280x720p25 | 1280x720p25 |
| 0 | 0 | 1 | 1 | 0 | 1280x720p30 | 1280x720p30 |
| 0 | 0 | 1 | 1 | 1 | 1280x720p50 | 1280x720p50 |
| 0 | 1 | 0 | 0 | 0 | 1280x720p60 | 1280x720p60 |
| 0 | 1 | 0 | 0 | 1 | Software control | |

The table shows the different settings available for the HDMI and the HD-SDI outputs.

**Auto:** Camera negotiates format over HDMI. HD-SDI tracks HDMI and defaults to 1080p30 in absence of HDMI sync.

**Software:** For more on the **Software control** setting, read about video mode selections in the TANDBERG PrecisionHD 1080p User Guide.

# Cameras in daisy chain

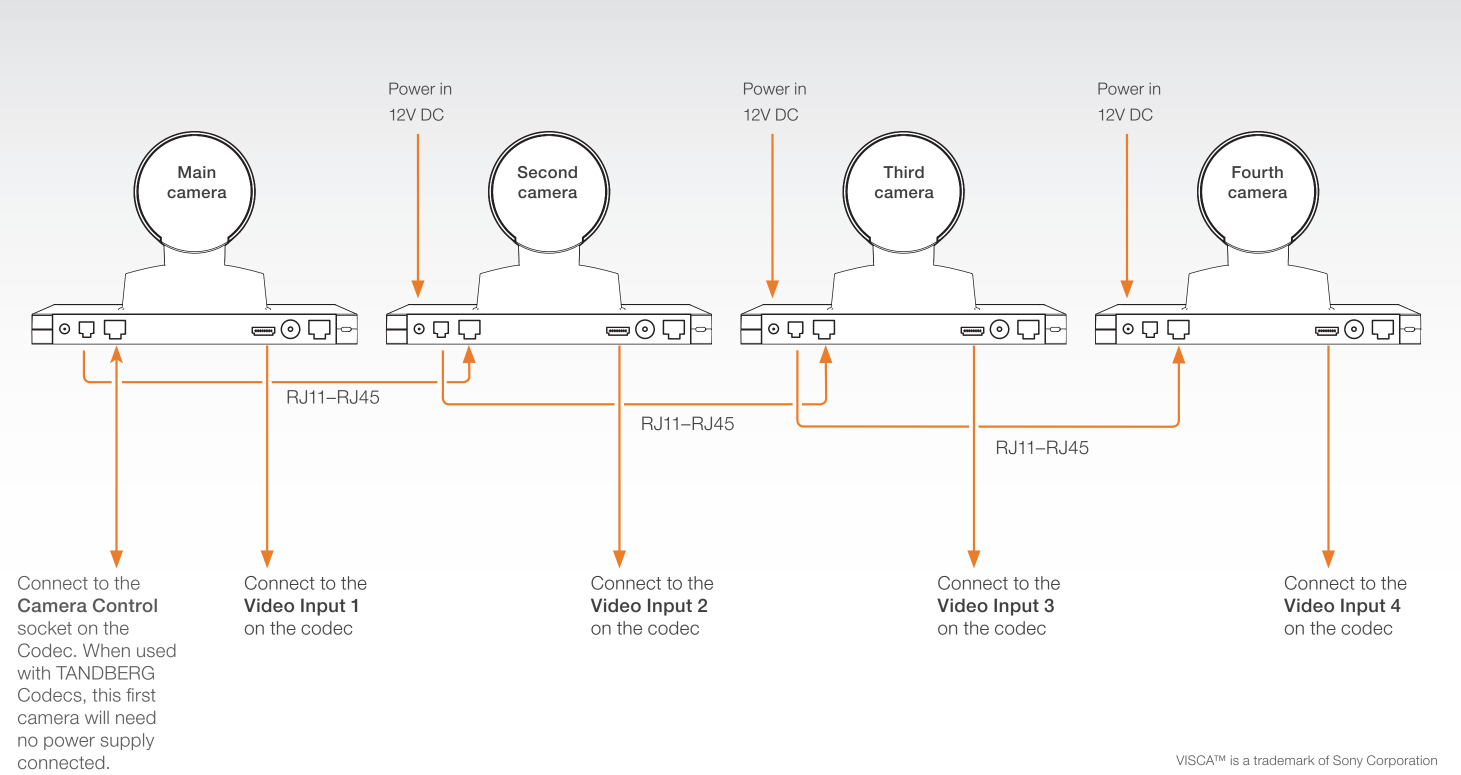
A single daisy chain can have up to seven cameras.

## Cascaded cameras

The sockets named Extra Camera and Power In are used when connecting cameras in daisy chain.

- HDMI and HD-SDI. The HDMI and HD-SDI can be used simultaneously on the same camera.
- Power. The first camera in the chain is powered up from the codec by the VISCA camera control cable. Additional cameras must use the 12V DC Power in.
- Extra camera cable. The daisy chained cameras are connected by using the VISCA Extra Camera cable between the Extra Camera In and Codec Control In sockets

**Example.** Four daisy chained TANDBERG PrecisionHD 1080p cameras.

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Chapter 7

# Appendices

In this chapter...


- General room guidelines
- Telepresence room setup
- High end meeting room setup
- Video input matrix
- Software upgrade
- Upload certificates
- XML files
- Log files
- NTP Time Zone expression
- Supported RFCs in SIP
- Remote Control TRC5
- Remote Control key map
- TANDBERG DNAM
- CE Declaration
- China RoHS
- TANDBERG T1 dimensions
- PrescisionHD 1080p dim.
- Technical specifications


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TANDBERG See: green

# General room guidelines

## The physical conditions

When building a video meeting room, or using an existing room for video meetings there are a few guidelines to consider.

### Lighting

- The illumination should be distributed evenly in the room to obtain low contrast
- The ideal light intensity is a little higher than in an ordinary meeting room. Typically, the luminous intensity should be 800–1400Lux, measured at the table with an incident light meter

### Seating area and table

- The seating area and table should be non-shiny and non-patterned
- The seating area should allow all participants to see the monitor

### Walls

- The color of the wall should be in good contrast to skin tonality. Light blue is a complementary color to skin tonality, it gives a good contrast and is commonly used
- Acoustically reflective surfaces (such as glass or concrete) should be covered with curtains or sound treatment

### Audio

- The Noise Floor (the sum of all the noise sources) should be less than 44 dBC
- The reverberation time should be 0,3 to 0,5 seconds

### Ventilation

- The requirements for ventilation is a little higher than in an ordinary meeting room as the **TANDBERG T1** has the following specifications:
    - Max rating – 800 Watts
    - Normal operation – 650 Watts
    - Standby – 160 Watts
- Keep in mind the Noise Floor (see Audio)
- Velocity creates noise, therefore keep velocity of air low

## The room equipment

When placing and using the room equipment there are a few recommendations and guidelines to consider.

### The microphone

- The microphones should be evenly distributed on the table. Avoid positions where they can be hidden behind obstacles like laptop, projector or other equipment placed on the table
- Do not place a microphone close to power outlets or similar arrangements on the table. The microphone will pick up noise from these arrangements quite strongly

### The camera

- The camera should be able to “see” all participants in the room. Use the pan, tilt and zoom features to adjust the picture

### The PC

- PC’s placed on the table should not cover the microphones as this will reduce the audio quality at the far end

### Position of the system

- Position the TANDBERG T1 in such a way that all participants attending the meeting are visible to the far end
- If appropriate, the far end should be able to see people entering or leaving the room

### The document camera

- The document camera should be close to the chair person or a designated controller of the document camera for ease of use Make sure this person is visible on screen while carry out the task

### Other peripherals

- Arrange all the peripherals so that the chair person can reach each of them to point, change the display, DVD, and still be fully visible on screen while carry out the task

## Environmental considerations

This section explains how to carry out basic adjustments and simple tests to ensure that you send and receive the best possible image and audio quality when using your system.

### Iris control and lighting

By default the system camera will use an automatic iris to compensate for changes in lighting. In addition to this feature, you may further assist the system to maintain the best possible image quality by paying special attention to environmental lighting and background colors as described below.

Remember the system will send live images of both yourself and your immediate surroundings.

- Avoid direct sunlight on the subject matter i.e. yourself, the background or onto the camera lens as this will create harsh contrasts
- Avoid placing the seatings in front of a window with natural daylight, as this will make the faces of people very dark
- If light levels are too low you may need to consider using artificial lighting. As described above, direct illumination of the subject matter and camera lens should be avoided
- When using artificial lighting, daylight type lamps will produce the most effective results. Avoid colored lighting
- Indirect light from shaded sources or reflected light from pale walls often produces excellent results
- Avoid harsh side lighting or strong light from above. Strong sunlight from a window or skylight may put part or all of the subject matter in shadow or cause silhouetting

### Loudspeaker volume

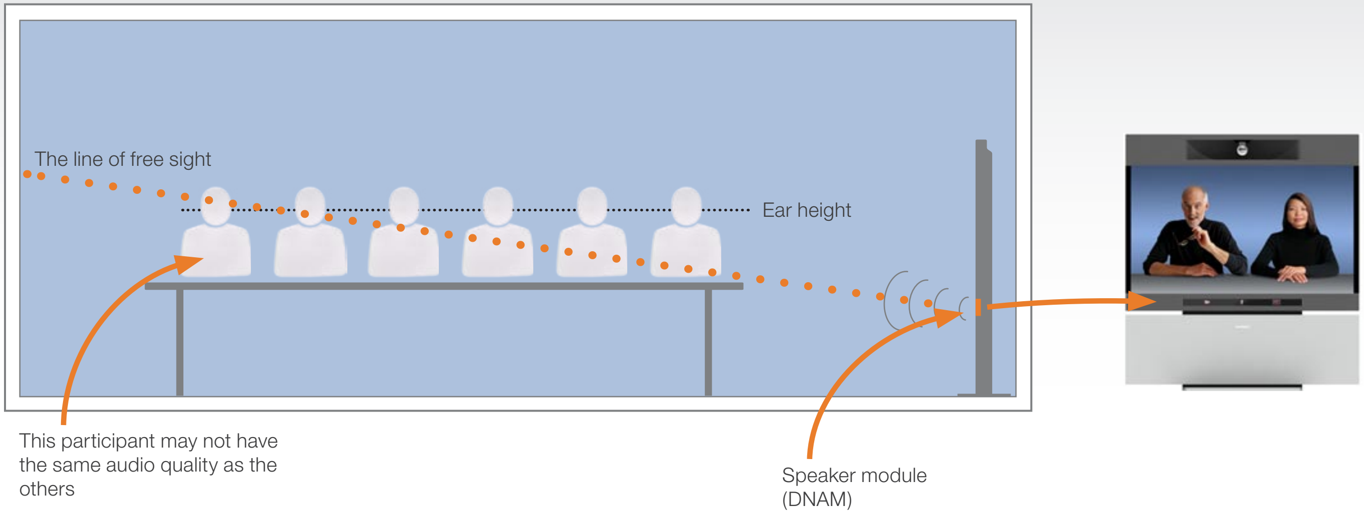
The audio system will use the Digital Natural Audio Module (DNAM) which is integrated in the system. The volume of the audio is controlled by the Volume key on the remote control.

## The audio quality

To keep the high quality audio, make sure there is free sight to the speaker module

- There should be free sight between the ears of the participants and the system speaker module
- Participant sitting too far away from the video system may not have the same audio quality as the others.

### The best audio quality to all participants

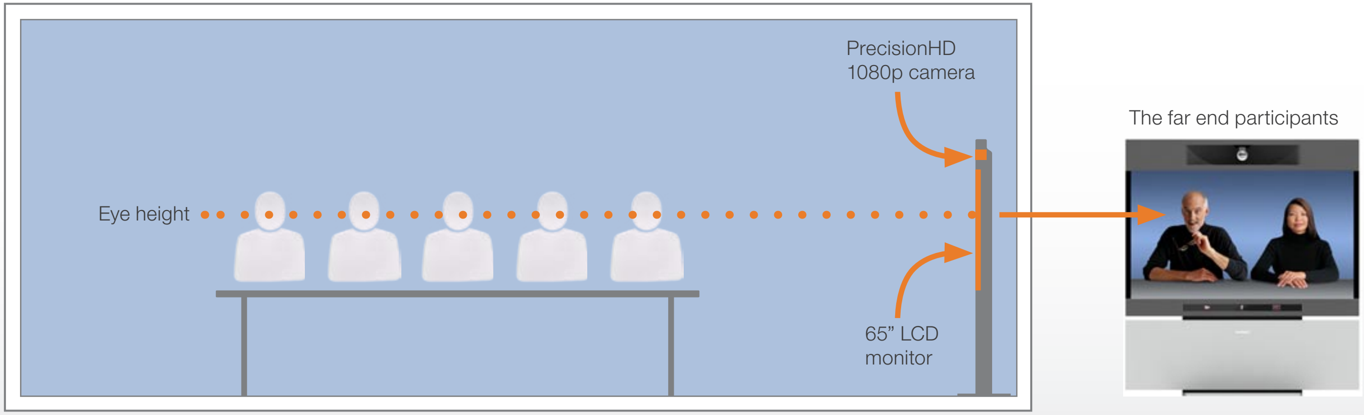



## Natural communication

Making eye contact with the far end participants will improve the natural communication between the people

- Adjust the camera view (using zoom in/out) to allow the participants to be shown in full size on screen, and to keep eye contact with each other at the same eye level
- If the participants are sitting too close to the monitor the camera will “look down” at the participants. This may not give a good presentation of the participants at the far end.

### Making eye contact



# Guidelines for the telepresence room setup

For executive meeting rooms and the executive office.

## General recommendations for the room layout

To fully utilize the telepresence experience there are some guidelines you should consider.

### The distance between the table and the video system

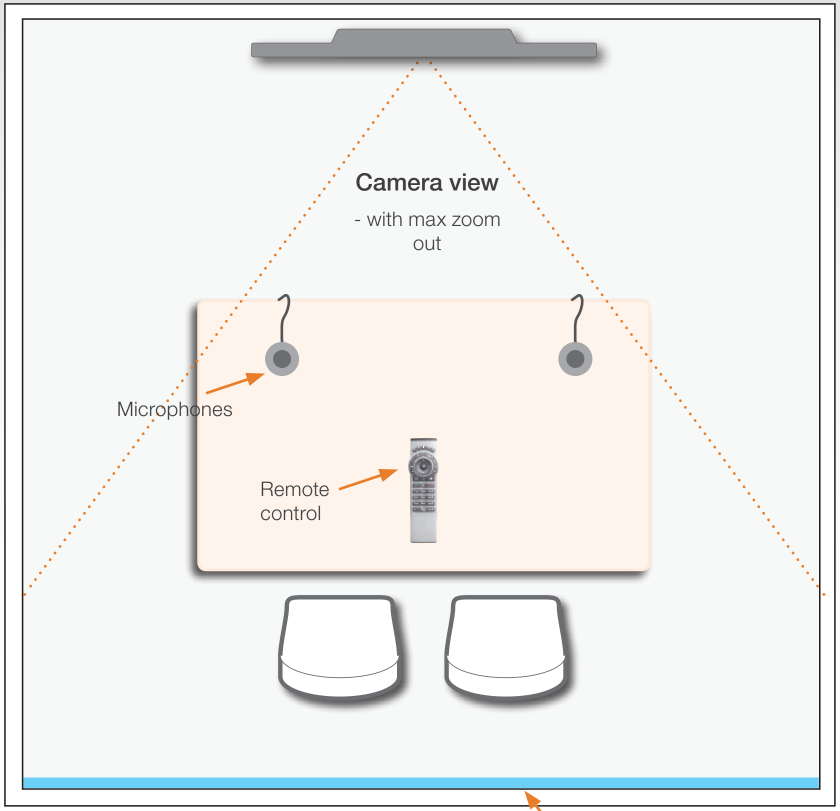
- The monitor is a 65” full HD LCD display and requires 2–2,5 m / 78–98 inch distance to the table to allow all participants to see a clear picture on screen
- Make sure all participants are covered within the camera angle, which at maximum zoom out is 72°
- Adjust the camera view (using zoom in/out) to allow the participants to be shown in full size on screen, and to keep eye contact with each other at the same eye level
- The camera should capture all participants in the room
- If the participants are sitting too close to the monitor the camera will “look down” at the participants. This may not give a good presentation of the participants at the far end.

### The speaker module

- The speaker module requires a minimum of 1,5 m / 59 inch free space in front
- There should be free sight between the system speaker module and the ear of the participants.

### The microphones

- The microphones should be evenly distributed on the table
- Avoid positions where they can be hidden behind obstacles like laptop or other equipment placed on the table
- Do not place a microphone close to power outlets or similar arrangements on the table. The microphone may pick up noise from these arrangements quite strongly.




A light blue wall color gives a good contrast to the skin tonality.

### Adjust the camera view

Press the Zoom +/– button on the remote control to adjust the picture on screen.

Adjust the camera view to allow the participants to be shown in full size on screen, and to keep eye contact with each other at the same eye level.

## Sharing a PC presentation

General recommendations for the executive meeting room and executive office are described on the previous page.

### Dual video stream

With dual video stream you can view two different live video streams simultaneously, the main video and one additional source. This could for example be both a PC presentation and the person who gives the presentation.

If one of the video systems does not support Dual Video Stream, no second video stream will be established and the PC presentation will be shown as the main video.

### Sharing the presentation

1. Make sure the PC do not cover any of the microphones as this will reduce the audio quality at the far end
2. Locate the DVI cable and connect the PC to the video system
3. When pressing the PC button () on the remote control the default presentation source is activated.

The DVI/VGA input is compliant with VESA Extended Display Identification Data (EDID) and will be able to notify the PC of the supported output formats.

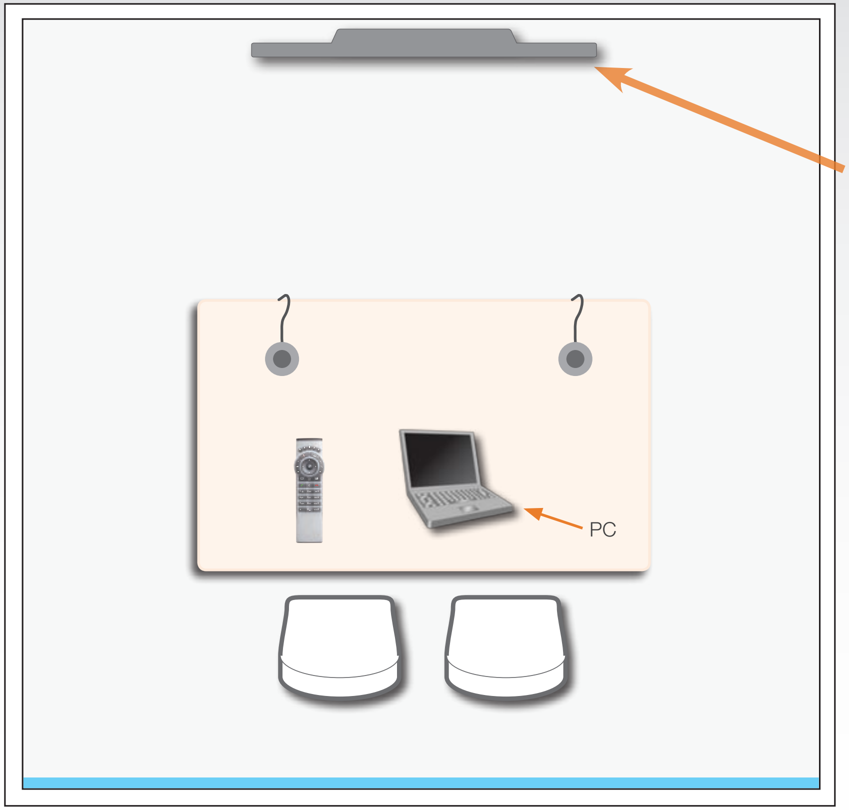
### Troubleshooting if the presentation does not show

- On most PC's you must press a special key combination to switch the PC image from the PC screen to the video screen
- Make sure the connector used for PC presentation is configured as the default presentation source.
  Go to: **Home** > **Administrator settings** > **Advanced configurations** > **Video** > **DefaultPresentationSource** (the default value is 3, and corresponds to ...Video > Input > Source 3)
- Make sure your PC is set to activate your VGA output

### Other presentation sources

You can also connect other presentation sources like:

- DVD
- Document camera




### The screen layout

Press the Layout button on the remote control to select a suitable layout on screen.

The default layout when showing a PC presentation is designed to allow the participants to keep eye contact with each other during the presentation.

Default layout with a wide signal in from the PC (currently only supported on digital input)

Default layout with a 4/3 signal in from the PC.

# Guidelines for the high end meeting room setup

For high end team collaboration rooms, team meeting rooms and showroom floor.

## General recommendations for the room layout

To fully utilize the telepresence experience there are some guidelines you should consider.

### The distance between the table and the video system

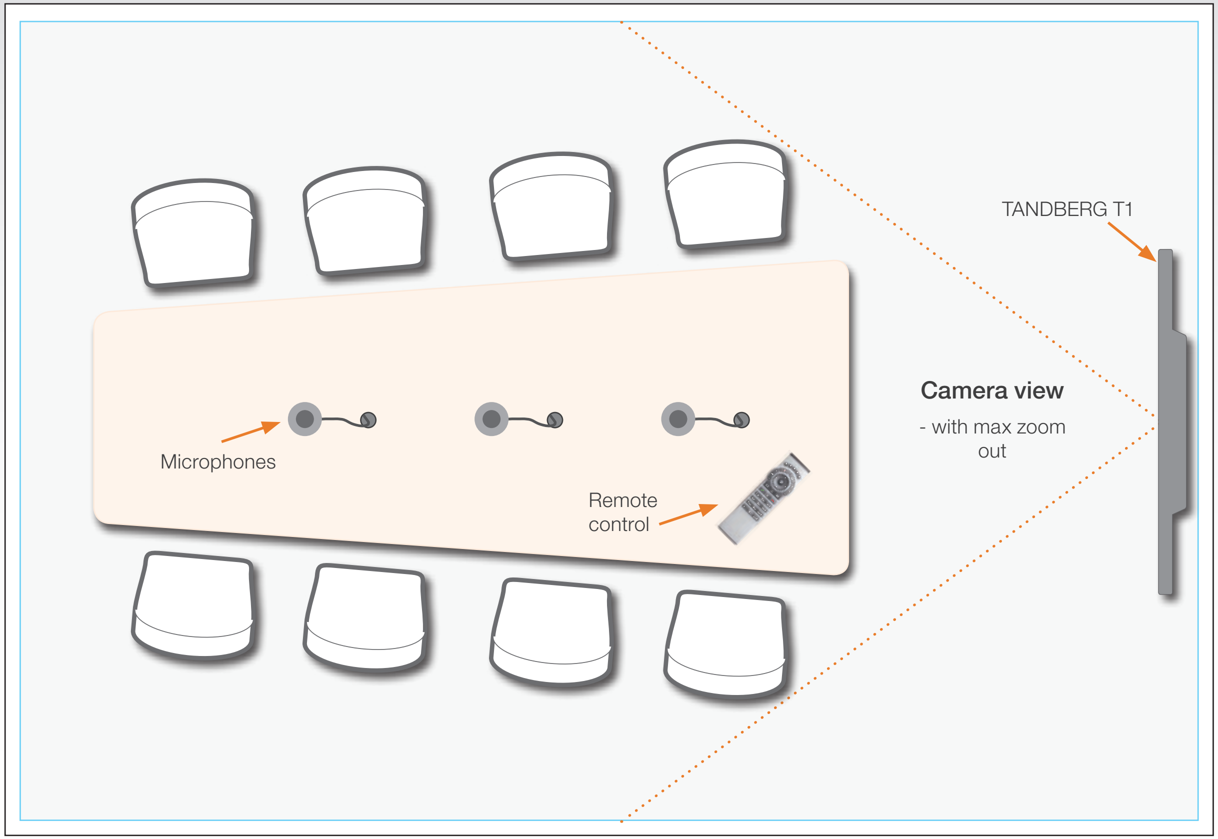
- The monitor is a 65" full HD LCD display and requires 2–2,5 m / 78–98 inch distance to the table to allow all participants to see a clear picture on screen
- Make sure all participants are covered within the camera angle, which at maximum zoom out is 72°
- Adjust the camera view (using zoom in/out) to allow the participants to be shown in full size on screen, and to keep eye contact with each other at the same eye level
- The camera should capture all participants in the room
- If the participants are sitting too close to the monitor the camera will "look down" at the participants. This may not give a good presentation of the participants at the far end.

### The speaker module

- The speaker module requires a minimum of 1,5 m / 59 inch free space in front
- There should be free sight between the system speaker module and the ear of the participants.

### The microphones

- The microphones should be evenly distributed on the table
- Avoid positions where they can be hidden behind obstacles like laptop or other equipment placed on the table
- Do not place a microphone close to power outlets or similar arrangements on the table. The microphone may pick up noise from these arrangements quite strongly.



### Adjust the camera view

Press the Zoom +/– button on the remote control to adjust the picture on screen.

Adjust the camera view to allow the participants to have eye contact with each other at the same eye level.

## Sharing a PC presentation

General recommendations for high end team collaboration rooms, team meeting rooms and showroom floor are described on the previous page.

### Dual video stream

With dual video stream you can view two different live video streams simultaneously, the main video and one additional source. This could for example be both a PC presentation and the person who gives the presentation.

If one of the video systems does not support Dual Video Stream, no second video stream will be established and the PC presentation will be shown as the main video.

### Sharing the presentation

1. Make sure the PC do not cover any of the microphones as this will reduce the audio quality at the far end
2. Locate the DVI cable and connect the PC to the video system
3. When pressing the PC button () on the remote control the default presentation source is activated.

The DVI/VGA input is compliant with VESA Extended Display Identification Data (EDID) and will be able to notify the PC of the supported output formats.

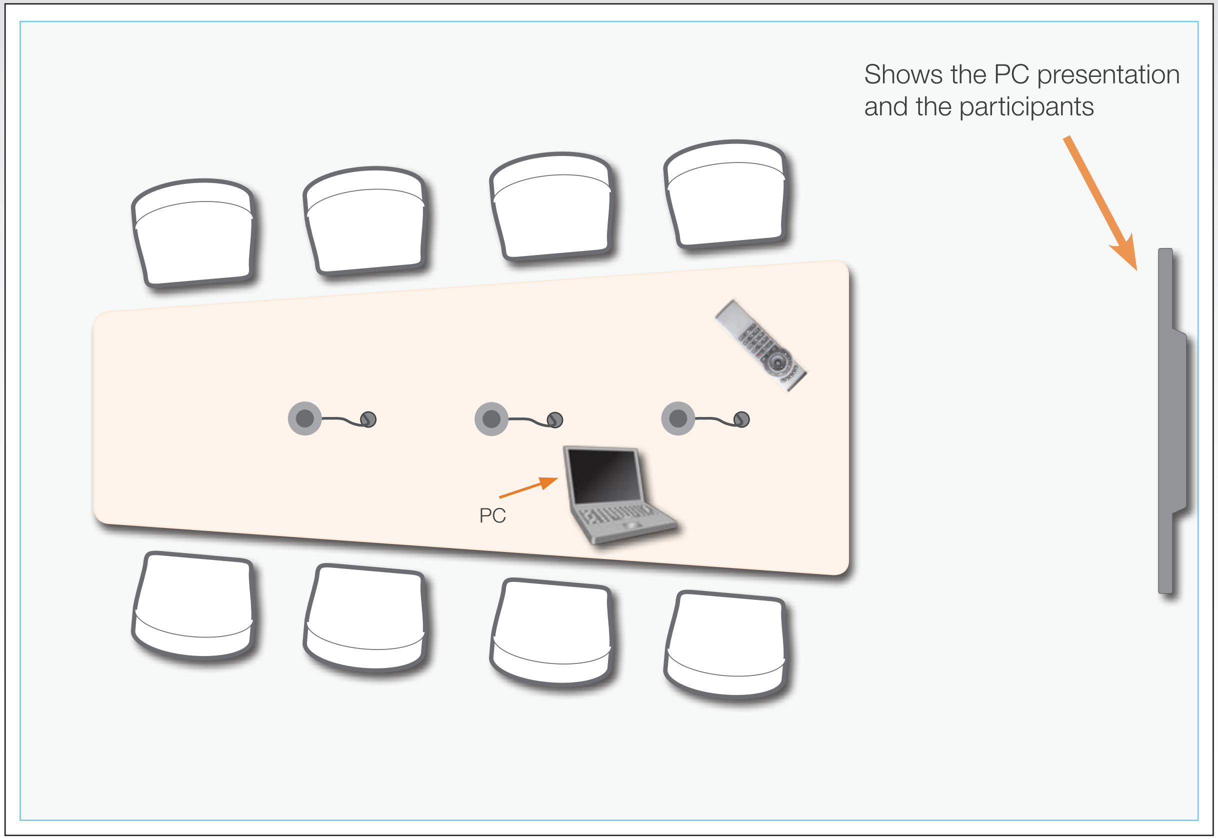
### Troubleshooting if the presentation does not show

- On most PC's you must press a special key combination to switch the PC image from the PC screen to the video screen
- Make sure the connector used for PC presentation is configured as the default presentation source.
  Go to: **Home** > **Administrator settings** > **Advanced configurations** > **Video** > **DefaultPresentationSource** (the default value is 3, and corresponds to ...Video > Input > Source 3)
- Make sure your PC is set to activate your VGA output

### Other presentation sources

You can also connect other presentation sources like:

- DVD
- Document camera




### The screen layout

Press the Layout button on the remote control to select a suitable layout on screen.

The default layout when showing a PC presentation is designed to allow the participants to keep eye contact with each other during the presentation.

Default layout with a wide signal in from the PC (currently only supported on digital input)

Default layout with a 4/3 signal in from the PC.

# TANDBERG Remote Control TRC5

Function keys: Represents shortcuts and advanced functions. Each key reflects a soft key on screen.

Microphone: Press the key to toggle the microphones on/off.

Volume: Press the + or – on the key to adjust the codec volume.

OK/Select: Press the √ key to confirm your choice or selection.

Phone book: Press the key to display the local Phone book.

Home: Press the key to key to show the menu on screen.

Call: Using the key:
INITIATE A CALL: Select a name from the Phone book or enter the name, number or URI and press the Call key to initiate the call.
SHORTCUT TO RECENT CALLS: Use the Call key as a shortcut to Recent Calls when the Call menu is not visible.

Clear: Press the C key to remove characters in a text field.

Waking up the system

Grab the remote control and make sure your hand touches the rubber line sensors going along both sides of the remote control.

*or:* Touch any key on the remote control.

Presentation: Press the key to show/hide a presentation.

Zoom: Press the + or – on the key to zoom the camera in and out.

Arrows:

- Up/Down: Use the ▲ and ▼ arrow keys to navigate in the menu.
- Arrow Right: Press the ▶ arrow key to expand the selected menu item or to move to the right in a text field.
- Arrow Left: Press the ◀ arrow key to go one step back in the menu or to move to the left in a text field.

Layout: Press the key to display the Layout menu, then select a view in the menu.

End call/Standby: Press the key to end a call, or when idle, press and hold the key to go into standby mode.

Alphanumeric keypad: Use the keypad in the same way as you would use a cellular phone.

- 0-9, a-z, period (.), @, space, *: Press a key repeatedly to toggle between the options displayed on each key.
- abc/123 #: Press the # key to toggle between touch tones mode (long press), lower case characters and numbers.

IR transmitter range (DIP switch setting)

The IR transmitter has a short and long range. Open the battery cover and remove the batteries to set the DIP switch.

- Short range (1 m): Move the DIP switch down.
- Longer range: Move the DIP switch up.

# The Video Input Matrix

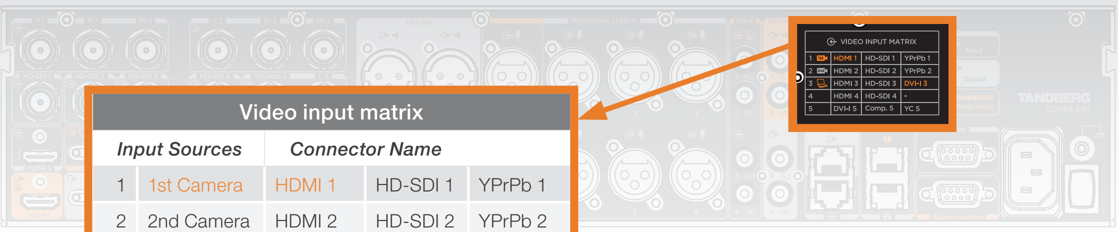
The video input matrix is found at the rear side of the codec and illustrates the combinations in which the video inputs can be connected.

## About the matrix

Only one video input source from each row can be active at any time.

The numbers in the left column represents the Video Input Sources 1–5. The main connectors, which are used in basic setup, are marked in orange color.

The Comp. 5 and S-Video (YC) 5 inputs uses the same physical connectors and can not be connected at the same time.



**Video input matrix**

| *Input Sources* | | *Connector Name* | | |
|---|---|---|---|---|
| 1 | 1st Camera | HDMI 1 | HD-SDI 1 | YPrPb 1 |
| 2 | 2nd Camera | HDMI 2 | HD-SDI 2 | YPrPb 2 |
| 3 | PC | HDMI 3 | HD-SDI 3 | DVI-I 3 |
| 4 | | HDMI 4 | HD-SDI 4 | – |
| 5 | | DVI-I 5 | Comp. 5* | YC 5* |

* Comp 5 and YC 5  are not supported in version 1

## Configure the video inputs

You can configure the video input settings from the Administrator Settings menu or by running API commands.

The default configurations are shown below:

What connectors are active is determined by the configuration of the video input connector settings:

- Video Input Source 1 Connector: HDMI
- Video Input Source 2 Connector: HDMI
- Video Input Source 3 Connector: DVI
- Video Input Source 4 Connector: HDMI
- Video Input Source 5 Connector: DVI

The video name of the connector inputs should be set:

- Video Input Source 1 Name: “Main Camera“
- Video Input Source 2 Name: “Secondary Camera“
- Video Input Source 3 Name: “PC“
- Video Input Source 4 Name: “DVD“
- Video Input Source 5 Name: “Document Camera“

The video quality of the connector inputs should be set:

- Video Input Source 1 Quality: Motion
- Video Input Source 2 Quality: Motion
- Video Input Source 3 Quality: Sharpness
- Video Input Source 4 Quality: Motion
- Video Input Source 5 Quality: Sharpness

To determine the main video source and the default presentation source for the system the following setting must be configured:

- Video MainVideoSource: 1
- Video DefaultPresentationSource: 3

## Administrator settings

Open the menu on screen to configure the video input sources and which of the sources should be the main video source and the default presentation source.

If the system is in standby mode, press any key on the remote control to wake up the system.

1. Select: Settings > Administrator Settings > Advanced Configurations
2. From this point you can:
    - Search for the words “source” or “video” to see a list of the available Video Input Source [1–5] Connector settings
    - *- or,* you can navigate down in the list to Video > Input > Source 1 > Connector
3. On the remote control, press the right arrow to edit the values
    - Select a value and press Save, or press Cancel to leave without saving.
4. Proceed and configure the:
    - Video Input Source Name, for the current input
    - Video Input Source Quality, for the current input
    - Video Main Video Source, for the system
    - Video Default Presentation Source, for the system

## API commands

Open a telnet or ftp session to the codec to issue an API command to configure the video input sources and which of the sources should be the main video source and the default presentation source.

The following commands determines which connector to be active:

- `xconfiguration video input source 1 connector: hdmi`
- `xconfiguration video input source 2 connector: hdmi`
- `xconfiguration video input source 3 connector: dvi`
- `xconfiguration video input source 4 connector: hdmi`
- `xconfiguration video input source 5 connector: dvi`

Set the video quality and a name of the video inputs 1 to 5:

- `xconfiguration video input source 1 quality: motion`
- `xconfiguration video input source 1 name: “Main Camera“`
- Configure the video inputs 2 to 5

The main video source is the camera, connected to video input source 1:

- `xconfiguration video mainvideosource: 1`

The default presentation source is a PC, connected to video input source 3:

- `xconfiguration video defaultpresentationsource: 3`

# Software upgrade

The Upgrade tab lets you select the software upgrade file for TANDBERG Codec C90 and install the new software.

Please follow the procedure described on this page.

## The software upgrade procedure

Contact your TANDBERG representative to obtain the software upgrade file.

1. Open a web browser and enter the IP address to connect to the Codec C90 by HTTP

2. Select the Upgrade tab

3. Click Browse... and locate the upgrade file (.PKG)

4. Click the Install software button to start the installation.

5. Leave the system for a few minutes to allow the installation process to complete. The upgrade process takes about 4–5 minutes.

# Upload certificates

The Upload certificates tab lets you upload a CA list (ROOT certificate) to authenticate TLS connections on SIP and a HTTPS certificate to enable HTTPS.

The system administrator issues/obtains and installs unique certificates to each system.

For TLS connections a ROOT Certificate (CA-list) can be uploaded from the web interface.

When the SIP setting TlsVerify is enabled, only TLS connections to servers, whom x.509 certificate is validated against the CA-list, will be allowed.

Go to: Settings > Administrator settings > Advanced configuration > SIP > Profile > TlsVerify

To install a certificate, you need:

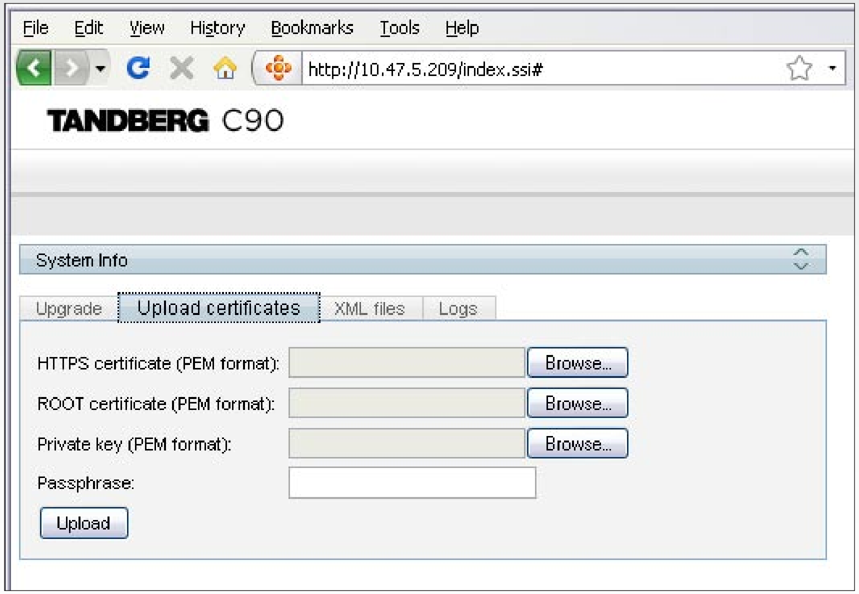
- HTTPS certificate ( .PEM format)
- ROOT certificate ( .PEM format)
- Private key ( .PEM format)
- Passphrase (optional)

## The certificates upload procedure

Contact your system administrator to obtain the required files (.PEM format).

### How to upload the certificate

1. Open a web browser and enter the IP address to connect to the Codec C90 by HTTP.
2. Select the Upload certificates tab
3. Click Browse... and locate the certificate files (.PEM)
4. Type in the Passphrase
5. Click the Upload button to start the certificate installation.



# XML files

The XML files tab gives a complete overview of the status of the system and the commands available on XML format.

## Configuration

Configuration type commands defines the system settings and are controlled from the Administrator Settings menu or from the API. Configuration type commands are either supplied or read by the user.

Example: Set IP addresses, default presentation source, standby delay, and enabling/disabling of various features etc.

The configuration commands are structured in a hierarchy, making up a database of system settings.

## Status

Status type commands returns information about the system and system processes and are issued from the API. Status type commands are read by the user.

Example: Information generated by the system about ongoing calls, network status, conference status etc.

All status information is structured in a hierarchy, making up a database constantly being updated by the system to reflect system and process changes.

## Command

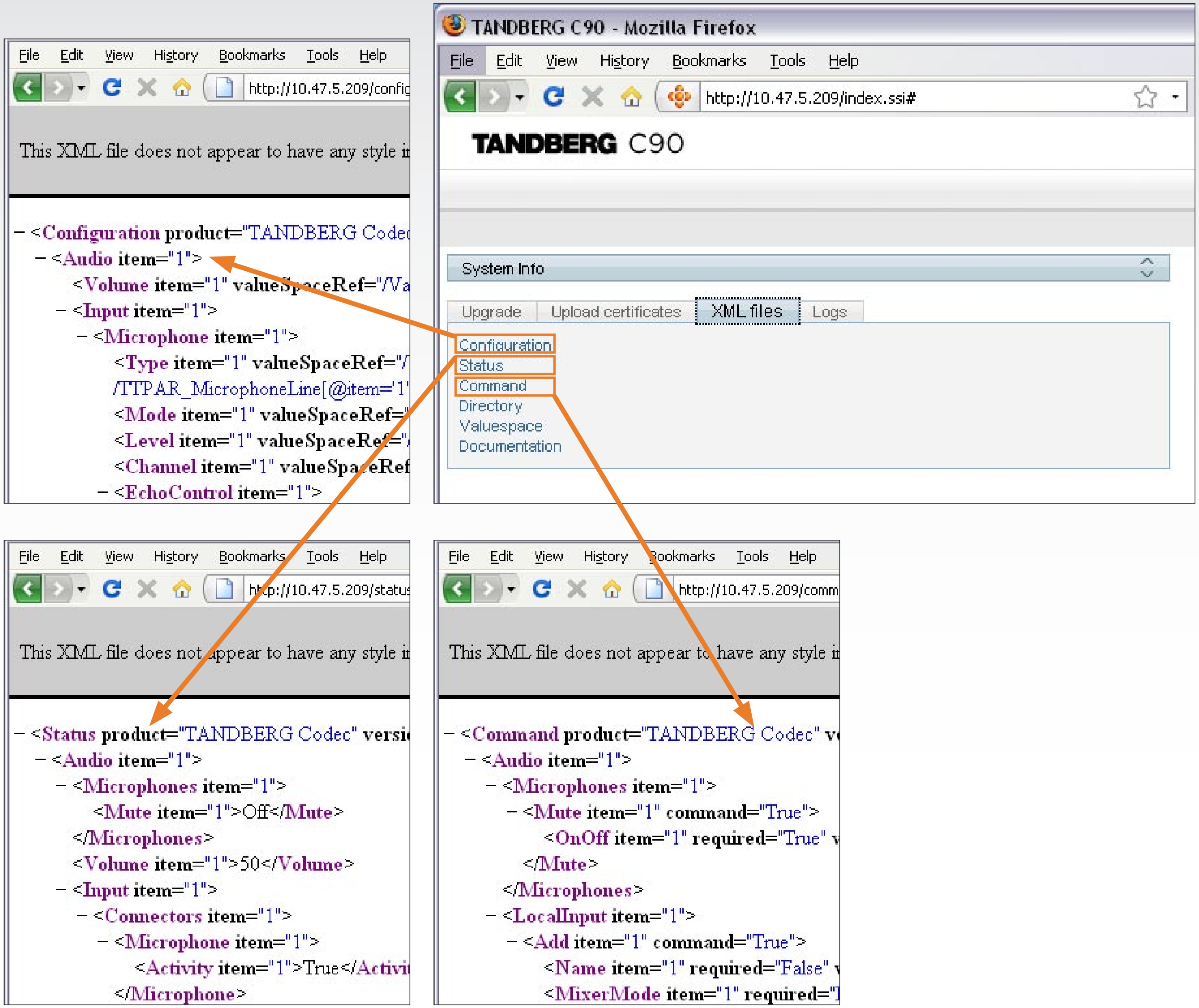
Command type commands instructs the system to perform an action and are issued from the API. Command type commands are supplied by the user.

Example: instructing the system to place a call, mute/unmute microphones, disconnect a call, etc.

A Command type command is usually followed by a set of parameters to specify how the given action is to be executed.

## View XML files

Select the XML file to see a tree structure of all the configuration commands



# Log files

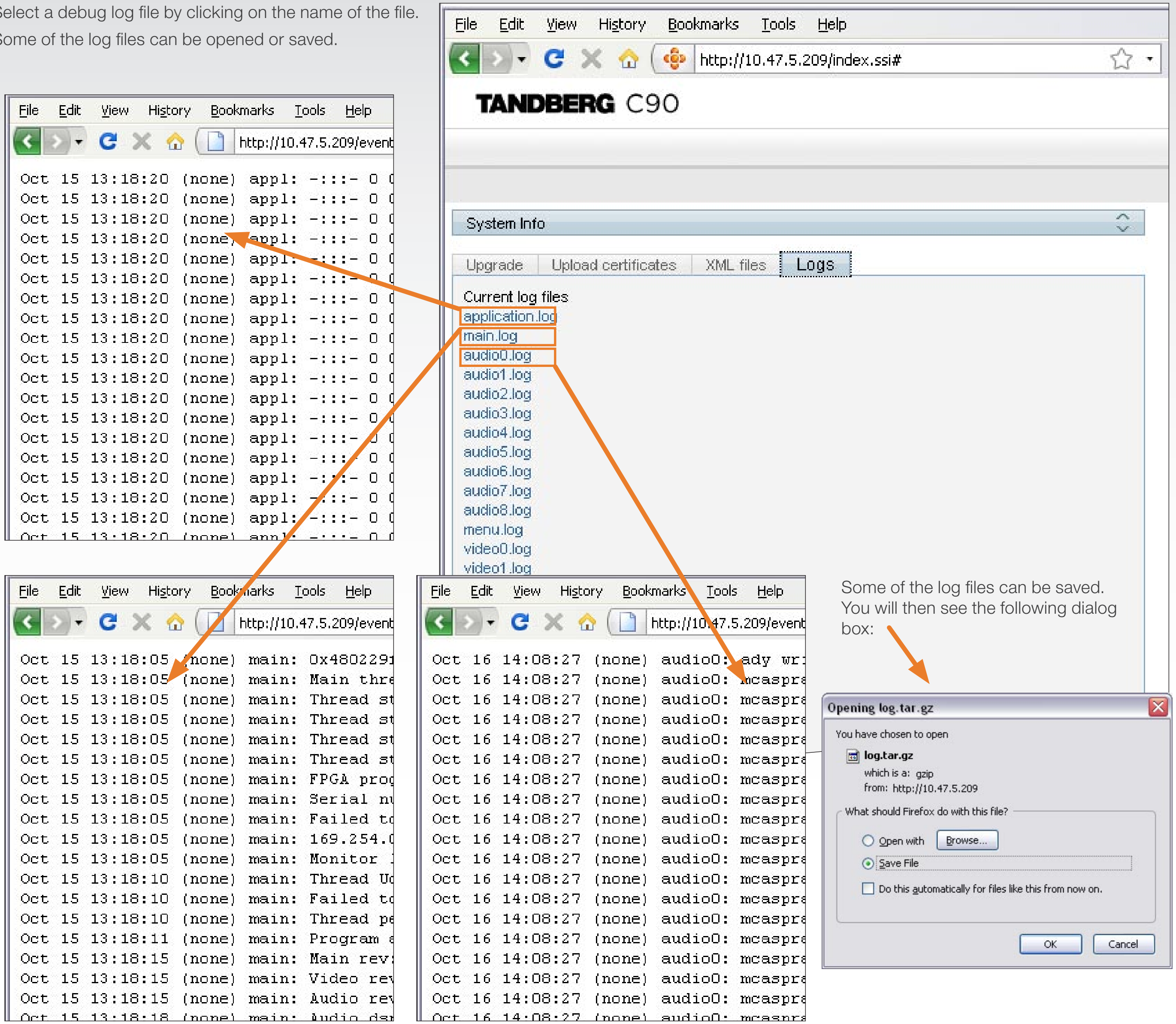
In the Logs tab you will find debug log files.

These are TANDBERG specific debug files which may be required by TANDBERG in the need of technical support.

## Debug log files

Select a debug log file by clicking on the name of the file.

Some of the log files can be opened or saved.




Some of the log files can be saved. You will then see the following dialog box:

# TANDBERG DNAM

The TANDBERG DNAM – Digital Natural Audio Module – is built on two specially designed and separate modules, the amplifier and the loudspeaker cabinet.

## The DNAM Loudspeaker Cabinet

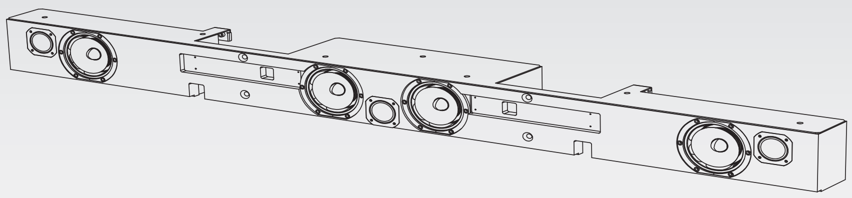
- 3-way Center Speaker system
- Frequency range 50Hz - 20kHz
- 2 x 100mm low- and midrange loudspeakers, 8 ohms nominal, excellent quality (SEAS Excel series)
- 1 x 25mm dome tweeter, 6 ohms nominal, high quality
- Crossover filtered audio signals received from DNAM amplifier
- Long time max power 70 Watt on all loudspeakers
- Enclosed MDF speaker cabinet

### Integrated Stereo Speaker

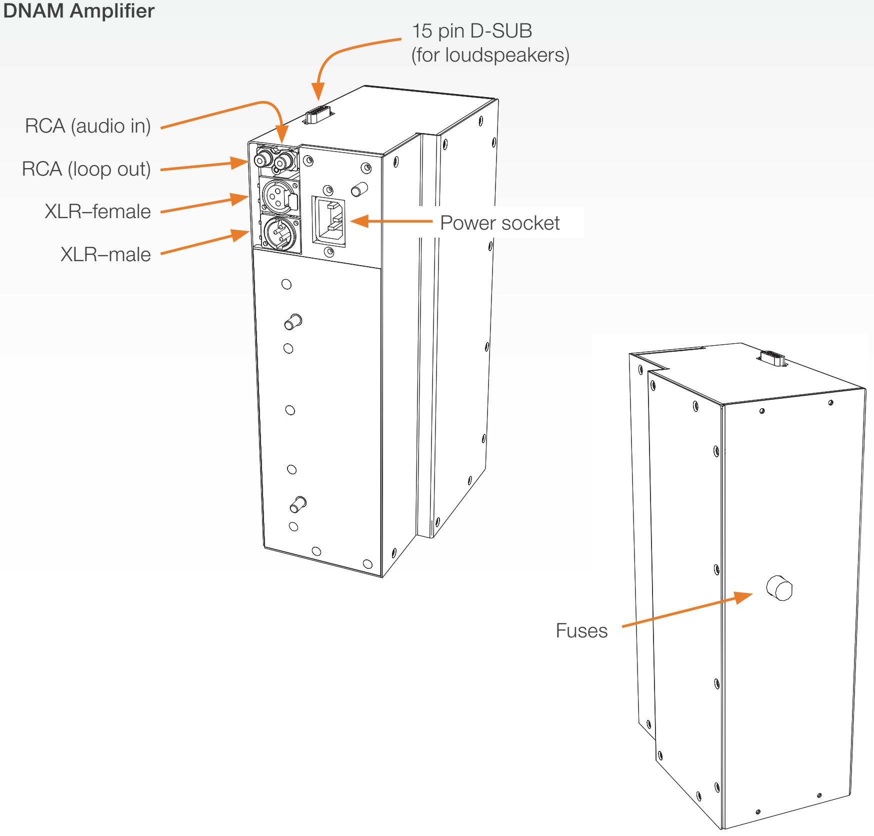
2-way Stereo Speaker System, each side has:

- 1 x 100mm low- and midrange loudspeaker, 8 ohms nominal, excellent quality (SEAS Excel series)
- 1 x 25mm dome tweeter, 6 ohms nominal, high quality
- Passive crossover filter
- Frequency range 70 Hz - 20 kHz
- Long time max power 70 Watt
- Enclosed MDF speaker cabinet

**DNAM Loudspeaker**



**DNAM Amplifier**




## The DNAM Amplifier

- 3 x 50W continuous average Center Output Power (load specified by DNAM Center Speakers).
- 2 x 50W continuous average Stereo Output Power (load specified by TANDBERG Loudspeaker Stereo Kit).
- Full dynamic range for audio (high fidelity range) or Integrated stereo speakers.
- Digital Signal Processing and Filtering on all channels for best audio detail clarity.
- Digital Crossover Filtering on center channels.
- In/out:
  - Audio In - SPDIF (stereo) or Analog (mono), using the same connector.
  - Differential In - (female XLR pinout: 1 - GND, 2 – Signal (+), 3 – Signal (-))
  - Loop Out - line out directly from the input, always analog even with SPDIF in.
  - Stereo Out - (male XLR, common GND configuration)
- Fuse 2A 250V Slow, 5 x 20mm, Littelfuse type 215002.

# NTP Time Zone expressions

With reference to the Time zone setting in the Administrator settings menu, see the Settings library section.

Specifies the NTP time zone where the system is located.

Example 1: Time Zone: “America/New_York”

Example 2: Time Zone: “Etc/UTC”

**NOTE:** Spelling correctly is important when entering the NTP Time Zone expression.

Africa
Africa/Abidjan
Africa/Accra
Africa/Addis_Ababa
Africa/Algiers
Africa/Asmara
Africa/Asmera
Africa/Bamako
Africa/Bangui
Africa/Banjul
Africa/Bissau
Africa/Blantyre
Africa/Brazzaville
Africa/Bujumbura
Africa/Cairo
Africa/Casablanca
Africa/Ceuta
Africa/Conakry
Africa/Dakar
Africa/Dar_es_Salaam
Africa/Djibouti
Africa/Douala
Africa/El_Aaiun
Africa/Freetown
Africa/Gaborone
Africa/Harare
Africa/Johannesburg
Africa/Kampala
Africa/Khartoum
Africa/Kigali
Africa/Kinshasa
Africa/Lagos
Africa/Libreville
Africa/Lome
Africa/Luanda
Africa/Lubumbashi
Africa/Lusaka
Africa/Malabo
Africa/Maputo
Africa/Maseru
Africa/Mbabane
Africa/Mogadishu
Africa/Monrovia
Africa/Nairobi
Africa/Ndjamena
Africa/Niamey
Africa/Nouakchott
Africa/Ouagadougou
Africa/Porto-Novo
Africa/Sao_Tome
Africa/Timbuktu
Africa/Tripoli
Africa/Tunis
Africa/Windhoek
America
America/Adak
America/Anchorage
America/Anguilla
America/Antigua
America/Araguaina
America/Argentina
America/Argentina/Buenos_Aires
America/Argentina/Catamarca
America/Argentina/ComodRivadavia
America/Argentina/Cordoba
America/Argentina/Jujuy
America/Argentina/La_Rioja
America/Argentina/Mendoza
America/Argentina/Rio_Gallegos
America/Argentina/San_Juan
America/Argentina/San_Luis
America/Argentina/Tucuman
America/Argentina/Ushuaia
America/Aruba
America/Asuncion
America/Atikokan
America/Atka
America/Bahia
America/Barbados
America/Belem
America/Belize
America/Blanc-Sablon
America/Boa_Vista
America/Bogota
America/Boise
America/Buenos_Aires
America/Cambridge_Bay
America/Campo_Grande
America/Cancun
America/Caracas
America/Catamarca
America/Cayenne
America/Cayman
America/Chicago
America/Chihuahua
America/Coral_Harbour
America/Cordoba
America/Costa_Rica
America/Cuiaba
America/Curacao
America/Danmarkshavn
America/Dawson
America/Dawson_Creek
America/Denver
America/Detroit
America/Dominica
America/Edmonton
America/Eirunepe
America/El_Salvador
America/Ensenada
America/Fort_Wayne
America/Fortaleza
America/Glace_Bay
America/Godthab
America/Goose_Bay
America/Grand_Turk
America/Grenada
America/Guadeloupe
America/Guatemala
America/Guayaquil
America/Guyana
America/Halifax
America/Havana
America/Hermosillo
America/Indiana
America/Indiana/Indianapolis
America/Indiana/Knox
America/Indiana/Marengo
America/Indiana/Petersburg
America/Indiana/Tell_City
America/Indiana/Vevay
America/Indiana/Vincennes
America/Indiana/Winamac
America/Indianapolis
America/Inuvik
America/Iqaluit
America/Jamaica
America/Jujuy
America/Juneau
America/Kentucky
America/Kentucky/Louisville
America/Kentucky/Monticello
America/Knox_IN
America/La_Paz
America/Lima
America/Los_Angeles
America/Louisville
America/Maceio
America/Managua
America/Manaus
America/Marigot
America/Martinique
America/Mazatlan
America/Mendoza
America/Menominee
America/Merida
America/Mexico_City
America/Miquelon
America/Moncton
America/Monterrey
America/Montevideo
America/Montreal
America/Montserrat
America/Nassau
America/New_York
America/Nipigon
America/Nome
America/Noronha
America/North_Dakota
America/North_Dakota/Center
America/North_Dakota/New_Salem
America/Panama

# NTP Time Zone expressions, cont...

America/Pangnirtung
America/Paramaribo
America/Phoenix
America/Port_of_Spain
America/Port-au-Prince
America/Porto_Acre
America/Porto_Velho
America/Puerto_Rico
America/Rainy_River
America/Rankin_Inlet
America/Recife
America/Regina
America/Resolute
America/Rio_Branco
America/Rosario
America/Santiago
America/Santo_Domingo
America/Sao_Paulo
America/Scoresbysund
America/Shiprock
America/St_Barthelemy
America/St_Johns
America/St_Kitts
America/St_Lucia
America/St_Thomas
America/St_Vincent
America/Swift_Current
America/Tegucigalpa
America/Thule
America/Thunder_Bay
America/Tijuana
America/Toronto
America/Tortola
America/Vancouver
America/Virgin
America/Whitehorse
America/Winnipeg
America/Yakutat
America/Yellowknife
Antarctica
Antarctica/Casey
Antarctica/Davis
Antarctica/DumontDUrville
Antarctica/Mawson
Antarctica/McMurdo
Antarctica/Palmer
Antarctica/Rothera
Antarctica/South_Pole
Antarctica/Syowa
Antarctica/Vostok
Arctic
Arctic/Longyearbyen
Asia
Asia/Aden
Asia/Almaty
Asia/Amman
Asia/Anadyr
Asia/Aqtau
Asia/Aqtobe
Asia/Ashgabat
Asia/Ashkhabad
Asia/Baghdad
Asia/Bahrain
Asia/Baku
Asia/Bangkok
Asia/Beirut
Asia/Bishkek
Asia/Brunei
Asia/Calcutta
Asia/Choibalsan
Asia/Chongqing
Asia/Chungking
Asia/Colombo
Asia/Dacca
Asia/Damascus
Asia/Dhaka
Asia/Dili
Asia/Dubai
Asia/Dushanbe
Asia/Gaza
Asia/Harbin
Asia/Ho_Chi_Minh
Asia/Hong_Kong
Asia/Hovd
Asia/Irkutsk
Asia/Istanbul
Asia/Jakarta
Asia/Jayapura
Asia/Jerusalem
Asia/Kabul
Asia/Kamchatka
Asia/Karachi
Asia/Kashgar
Asia/Katmandu
Asia/Kolkata
Asia/Krasnoyarsk
Asia/Kuala_Lumpur
Asia/Kuching
Asia/Kuwait
Asia/Macao
Asia/Macau
Asia/Magadan
Asia/Makassar
Asia/Manila
Asia/Muscat
Asia/Nicosia
Asia/Novosibirsk
Asia/Omsk
Asia/Oral
Asia/Phnom_Penh
Asia/Pontianak
Asia/Pyongyang
Asia/Qatar
Asia/Qyzylorda
Asia/Rangoon
Asia/Riyadh
Asia/Riyadh87
Asia/Riyadh88
Asia/Riyadh89
Asia/Saigon
Asia/Sakhalin
Asia/Samarkand
Asia/Seoul
Asia/Shanghai
Asia/Singapore
Asia/Taipei
Asia/Tashkent
Asia/Tbilisi
Asia/Tehran
Asia/Tel_Aviv
Asia/Thimbu
Asia/Thimphu
Asia/Tokyo
Asia/Ujung_Pandang
Asia/Ulan_Bator
Asia/Ulaanbaatar
Asia/Urumqi
Asia/Vientiane
Asia/Vladivostok
Asia/Yakutsk
Asia/Yekaterinburg
Asia/Yerevan
Atlantic
Atlantic/Azores
Atlantic/Bermuda
Atlantic/Canary
Atlantic/Cape_Verde
Atlantic/Faeroe
Atlantic/Faroe
Atlantic/Jan_Mayen
Atlantic/Madeira
Atlantic/Reykjavik
Atlantic/South_Georgia
Atlantic/St_Helena
Atlantic/Stanley
Australia
Australia/ACT
Australia/Adelaide
Australia/Brisbane
Australia/Broken_Hill
Australia/Canberra
Australia/Currie
Australia/Darwin
Australia/Eucla
Australia/Hobart
Australia/LHI
Australia/Lindeman
Australia/Lord_Howe
Australia/Melbourne
Australia/North
Australia/NSW
Australia/Perth
Australia/Queensland
Australia/South
Australia/Sydney
Australia/Tasmania
Australia/Victoria
Australia/West
Australia/Yancowinna
Brazil
Brazil/Acre
Brazil/DeNoronha
Brazil/East
Brazil/West
Canada
Canada/Atlantic
Canada/Central
Canada/Eastern
Canada/East-Saskatchewan
Canada/Mountain

# NTP Time Zone expressions, cont...

Canada/Newfoundland
Canada/Pacific
Canada/Saskatchewan
Canada/Yukon
CET
Chile
Chile/Continental
Chile/EasterIsland
CST6CDT
Cuba
EET
Egypt
Eire
EST
EST5EDT
Etc
Etc/GMT
Etc/GMT+0
Etc/GMT+1
Etc/GMT+10
Etc/GMT+11
Etc/GMT+12
Etc/GMT+2
Etc/GMT+3
Etc/GMT+4
Etc/GMT+5
Etc/GMT+6
Etc/GMT+7
Etc/GMT+8
Etc/GMT+9
Etc/GMT0
Etc/GMT-0
Etc/GMT-1
Etc/GMT-10
Etc/GMT-11
Etc/GMT-12
Etc/GMT-13
Etc/GMT-14
Etc/GMT-2
Etc/GMT-3
Etc/GMT-4
Etc/GMT-5
Etc/GMT-6
Etc/GMT-7
Etc/GMT-8
Etc/GMT-9
Etc/Greenwich
Etc/UCT
Etc/Universal
Etc/UTC
Etc/Zulu
Europe
Europe/Amsterdam
Europe/Andorra
Europe/Athens
Europe/Belfast
Europe/Belgrade
Europe/Berlin
Europe/Bratislava
Europe/Brussels
Europe/Bucharest
Europe/Budapest
Europe/Chisinau
Europe/Copenhagen
Europe/Dublin
Europe/Gibraltar
Europe/Guernsey
Europe/Helsinki
Europe/Isle_of_Man
Europe/Istanbul
Europe/Jersey
Europe/Kaliningrad
Europe/Kiev
Europe/Lisbon
Europe/Ljubljana
Europe/London
Europe/Luxembourg
Europe/Madrid
Europe/Malta
Europe/Mariehamn
Europe/Minsk
Europe/Monaco
Europe/Moscow
Europe/Nicosia
Europe/Oslo
Europe/Paris
Europe/Podgorica
Europe/Prague
Europe/Riga
Europe/Rome
Europe/Samara
Europe/San_Marino
Europe/Sarajevo
Europe/Simferopol
Europe/Skopje
Europe/Sofia
Europe/Stockholm
Europe/Tallinn
Europe/Tirane
Europe/Tiraspol
Europe/Uzhgorod
Europe/Vaduz
Europe/Vatican
Europe/Vienna
Europe/Vilnius
Europe/Volgograd
Europe/Warsaw
Europe/Zagreb
Europe/Zaporozhye
Europe/Zurich
Factory
GB
GB-Eire
GMT
GMT+0
GMT0
GMT-0
Greenwich
Hongkong
HST
Iceland
Indian
Indian/Antananarivo
Indian/Chagos
Indian/Christmas
Indian/Cocos
Indian/Comoro
Indian/Kerguelen
Indian/Mahe
Indian/Maldives
Indian/Mauritius
Indian/Mayotte
Indian/Reunion
Iran
iso3166.tab
Israel
Jamaica
Japan
Kwajalein
Libya
localtime
MET
Mexico
Mexico/BajaNorte
Mexico/BajaSur
Mexico/General
Mideast
Mideast/Riyadh87
Mideast/Riyadh88
Mideast/Riyadh89
MST
MST7MDT
Navajo
NZ
NZ-CHAT
Pacific
Pacific/Apia
Pacific/Auckland
Pacific/Chatham
Pacific/Easter
Pacific/Efate
Pacific/Enderbury
Pacific/Fakaofo
Pacific/Fiji
Pacific/Funafuti
Pacific/Galapagos
Pacific/Gambier
Pacific/Guadalcanal
Pacific/Guam
Pacific/Honolulu
Pacific/Johnston
Pacific/Kiritimati
Pacific/Kosrae
Pacific/Kwajalein
Pacific/Majuro
Pacific/Marquesas
Pacific/Midway
Pacific/Nauru
Pacific/Niue
Pacific/Norfolk
Pacific/Noumea
Pacific/Pago_Pago
Pacific/Palau
Pacific/Pitcairn
Pacific/Ponape
Pacific/Port_Moresby
Pacific/Rarotonga
Pacific/Saipan
Pacific/Samoa
Pacific/Tahiti
Pacific/Tarawa
Pacific/Tongatapu
Pacific/Truk
Pacific/Wake
Pacific/Wallis
Pacific/Yap
Poland
Portugal
posixrules
PRC
PST8PDT
ROC
ROK
Singapore
Turkey
UCT
Universal
US
US/Alaska
US/Aleutian
US/Arizona
US/Central
US/Eastern
US/East-Indiana
US/Hawaii
US/Indiana-Starke
US/Michigan
US/Mountain
US/Pacific
US/Pacific-New
US/Samoa
UTC
WET
W-SU
zone.tab
Zulu

# Supported RFCs in SIP

The RFC (Request for Comments) series contains technical and organizational documents about the Internet, including the technical specifications and policy documents produced by the Internet Engineering Task Force (IETF).

## Current RFCs and drafts supported in SIP

- RFC 1889 RTP: A Transport Protocol for Real-time Applications
- RFC 2190 RTP Payload Format for H.263 Video Streams
- RFC 2327 SDP: Session Description Protocol
- RFC 2396 Uniform Resource Identifiers (URI): Generic Syntax
- RFC 2429 RTP Payload Format for the 1998 Version of ITU-T Rec. H.263 Video (H.263+)
- RFC 2617 Digest Authentication
- RFC 2782 DNS RR for specifying the location of services (DNS SRV)
- RFC 2833 RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals
- RFC 2976 The SIP INFO Method
- RFC 3016 RTP Payload Format for MPEG-4 Audio/Visual Streams
- RFC 3047 RTP Payload Format for ITU-T Recommendation G.722.1
- RFC 3261 SIP: Session Initiation Protocol
- RFC 3262 Reliability of Provisional Responses in SIP
- RFC 3263 Locating SIP Servers
- RFC 3264 An Offer/Answer Model with SDP
- RFC 3311 UPDATE method
- RFC 3361 DHCP Option for SIP Servers
- RFC 3420 Internet Media Type message/sipfrag
- RFC 3515 Refer method
- RFC 3550 RTP: A Transport Protocol for Real-Time Applications
- RFC 3581 Symmetric Response Routing
- RFC 3605 RTCP attribute in SDP
- RFC 3711 The Secure Real-time Transport Protocol (SRTP)
- RFC 3840 Indicating User Agent Capabilities in SIP
- RFC 3890 A Transport Independent Bandwidth Modifier for SDP
- RFC 3891 The SIP “Replaces” Header
- RFC 3892 Referred-By Mechanism
- RFC 3960 Early Media
- RFC 3984 RTP Payload Format for H.264 Video
- RFC 4028 Session Timers in SIP
- RFC 4145 TCP-Based Media Transport in the SDP
- RFC 4568 SDP:Security Descriptions for Media Streams
- RFC 4574 The Session Description Protocol (SDP) Label Attribute
- RFC 4582 The Binary Floor Control Protocol
- RFC 4585 Extended RTP Profile for RTCP-Based Feedback
- RFC 4587 RTP Payload Format for H.261 Video Streams
- RFC 4629 RTP Payload Format for ITU-T Rec. H.263 Video
- RFC 5168 XML Schema for Media Control
- RFC 4796 The SDP Content Attribute
- RFC 4583 SDP Format for BFCP Streams
- draft-ietf-sipping-cc-transfer-06.txt
- draft-ietf-avt-rtp-h264-rcdo-01.txt
- draft-ietf-avt-rtp-h264-params-01.txt

## Media capabilities supported in SIP

The audio and video media capabilities supported in SIP are the same as for H.323.

# CE Declaration for Telepresence T1

For an official, signed version of this document, or details regarding documentation from the technical construction file, please contact TANDBERG.

| EC Declaration of conformity | | |
|---|---|---|
| MANUFACTURER: | TANDBERG Telecom AS | |
| PRODUCT NAME: | TANDBERG Telepresence T1 | |
| TYPE NUMBER: | TTC6-11 | |
| DESCRIPTION: | Video Conferencing Equipment | |
| DIRECTIVES:<br>This equipment complies with. | LVD 2006/95/EC<br>EMC 2004/108/EC | |
| HARMONIZED STANDARDS:<br>Applied in order to verify compliance with directives. | EN 60950-1:2006<br>EN 55022 (2006)<br>EN 55024 (1998) + A1 (2001) + A2 (2003)<br>EN 61000-3-2 (2006)<br>EN 61000-3-3 (1995) + A1 (2001) + A2 (2005) | |
| TEST REPORTS and<br>CERTIFICATES ISSUED BY: | Reports:<br>LVD (Nemko AS)<br>EMC (Nemko AS) | Certificates No.:<br>113009<br>E08564.00 |
| TECHNICAL CONSTRUCTION FILE NO.: | X14383 | |
| YEAR WHICH THE CE-MARK WAS AFFIXED: | 2008 | |

## China RoHS table

This product complies with the Chineese RoHS.

### 产品中有毒有害物质表

| 部件名称 | 有毒有害物质或元素 | | | | | |
|---|---|---|---|---|---|---|
| | 铅 | 汞 | 镉 | 六价铬 | 多溴联苯 | 多溴二苯醚 |
| 金属部件 | X | O | O | O | O | O |
| 印刷电路板及组件 | X | O | O | O | O | O |
| 线缆和线缆组装 | X | O | O | O | O | O |
| 显示器（包括照明灯） | X | X | O | O | O | O |

**说明:**

O：表示该有毒有害物质在此部件所有均质材料中的含量均在中国标准《电子信息产品中有毒有害物质的限量要求》(SJ/T 11363-2006) 所规定的限量要求以下。

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出中国标准《电子信息产品中有毒有害物质的限量要求》(SJ/T 11363-2006) 所规定的限量要求。

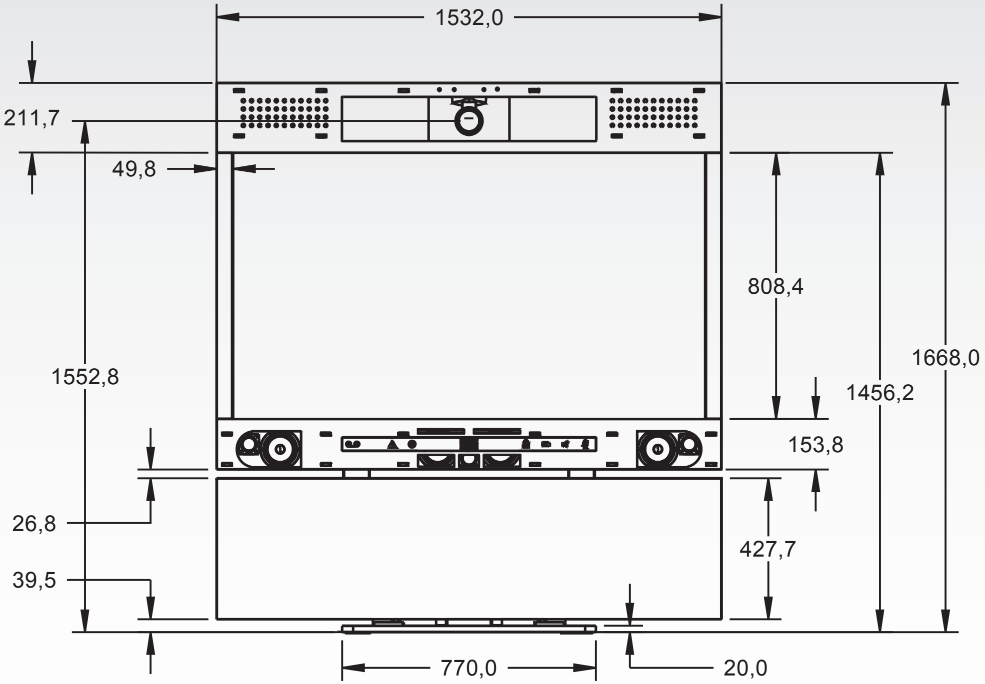
注意：在所售产品中未必包含所有上述所列部件。

除非在产品上有另外特别的标注，以下标志为针对所涉及产品的环保使用期限标志。环保使用期限只适用于产品在产品手册中所规定的使用条件。

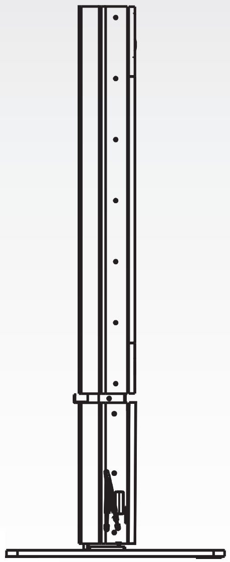
# TANDBERG T1 dimensions

The TANDBERG T1 dimensions in mm.

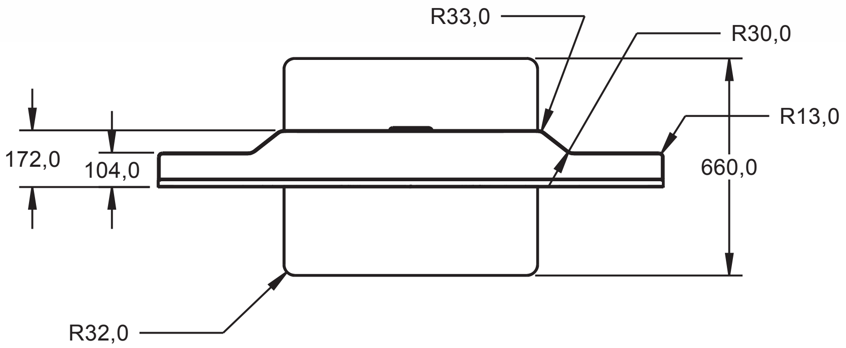
Front view



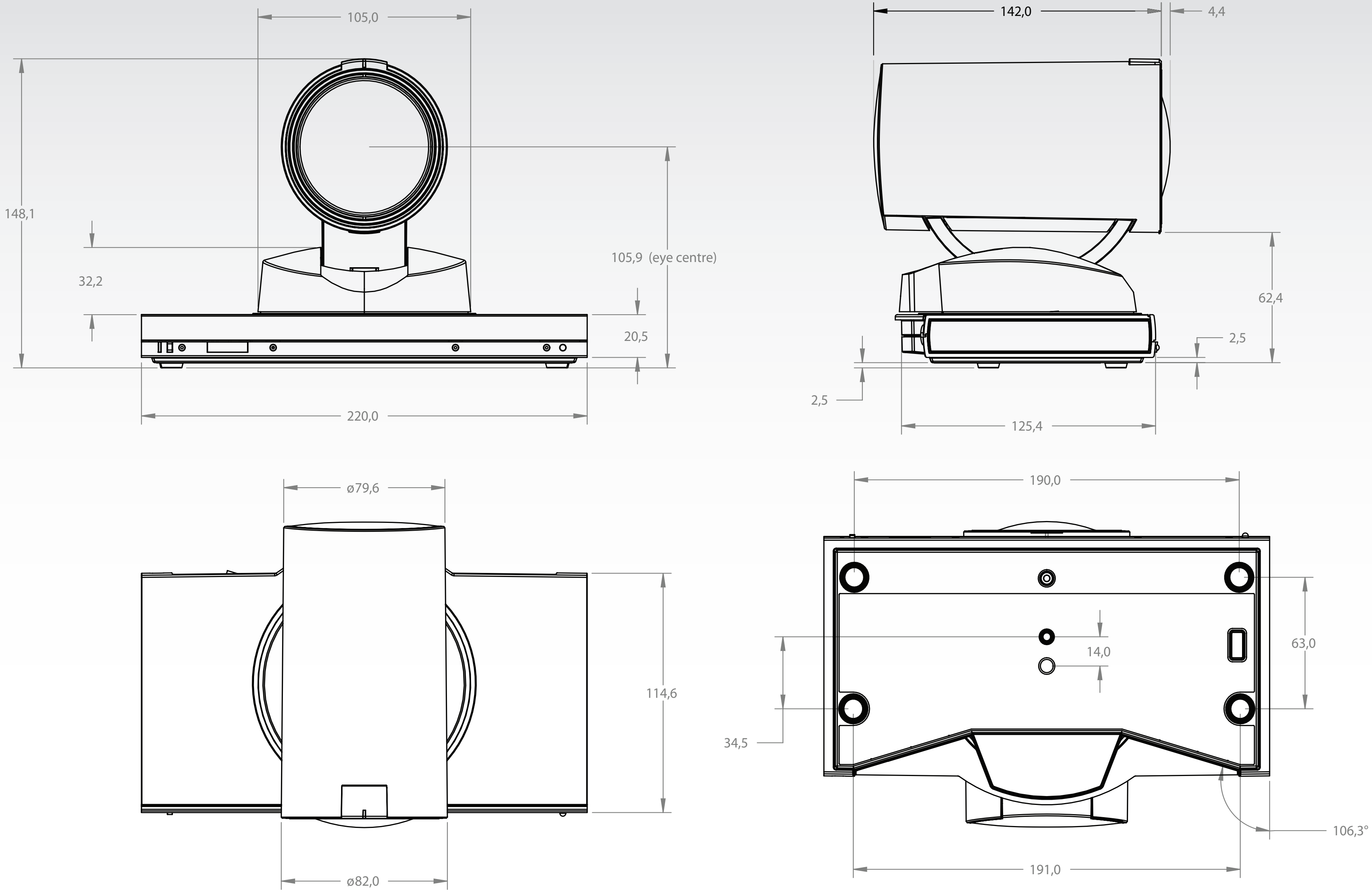

Left side view



Top view



# PrecisionHD 1080p camera dimensions



# Technical specifications

**UNIT DELIVERED COMPLETE WITH:**

TANDBERG 65" FullHD LCD Display, TANDBERG PrecisionHD 1080p camera, TANDBERG Codec C90, TANDBERG TRC5 remote control, microphones, integrated DNAM amplifier and speakers, integrated cabling

**BANDWIDTH**

- Up to 6 Mbps point-to-point
- Up to 10 Mbps total MultiSite bandwidth

**FIREWALL TRAVERSAL**

- TANDBERG Expressway™ Technology
- H.460.18, H.460.19 Firewall Traversal

**VIDEO STANDARDS**

- H.261, H.263, H.263+, H.264

**VIDEO FEATURES**

- Native 16:9 Widescreen
- Advanced Screen Layouts
- Intelligent Video Management
- Local Auto Layout

**VIDEO INPUTS (13 INPUTS)**

*4 x HDMI inputs, supported formats:*

- 1920x1080@60 fps (1080p60)
- 1920x1080@50 fps (1080p50)
- 1920x1080@30 fps (1080p30)
- 1920x1080@25 fps (1080p25)
- 1280x720@60 fps (720p60)
- 1280x720@50 fps (720p50)
- 640x480@60 fps (480p60)
- 800x600@60 fps (SVGA)
- 1024x768@60, 70, 75, 85 fps (XGA)
- 1280x1024@60, 75 fps (SXGA)

*4 x HD-SDI inputs, supported formats:*

- 1920x1080@30 fps (1080p30)
- 1920x1080@25 fps (1080p25)
- 1280x720@60 fps (720p60)
- 1280x720@50 fps (720p50)
- 1280x720@30 fps (720p30)
- 1280x720@25 fps (720p25)

*2 x DVI-I inputs, supported formats:*

Analog (VGA):

- 1024x768@60, 70, 75, 85 fps (XGA)
- 1280x1024@60, 75 fps (SXGA)
- Digital (DVI-D):
- 1920x1080@60 fps (1080p60)
- 1920x1080@50 fps (1080p50)
- 1920x1080@30 fps (1080p30)
- 1920x1080@25 fps (1080p25)
- 1280x720@60 fps (720p60)
- 1280x720@50 fps (720p50)
- 640x480@60 fps (480p60)
- 800x600@60 fps (SVGA)
- 1024x768@60, 70, 75, 85 fps (XGA)
- 1280x1024@60, 75 fps (SXGA)

*2 x YPbPr inputs, supported formats:*

- 1920x1080@60fps (1080p60)
- 1920x1080@50fps (1080p50)
- 1920x1080@30fps (1080p30)
- 1920x1080@25fps (1080p25)
- 1280x720@60fps (720p60)
- 1280x720@50fps (720p50)
- 1280x720@30fps (720p30)
- 720x576@50fps (576p50)
- 720x480@60fps (w480p60)

*1 x S-Video/Composite input (BNC connectors)**

- PAL/NTSC

Extended Display Identification Data (EDID)

**VIDEO OUTPUTS (5 OUTPUTS)**

*2 x HDMI outputs, 2 x DVI-I outputs, supported formats:*

- 1920x1080@60fps (HD1080p60)
- 1280x720@60fps (HD720p60)
- 1366x768@60fps (WXGA)
- 1280x768@60fps (WXGA)
- 1024x768@60fps (XGA)
- 1280x1024@60fps (SXGA)
- 640x480@60fps (VGA)
- 800x600@60fps (SVGA)

*1 x COMPOSITE OUTPUT (BNC CONNECTOR), supported formats:*

- PAL/NTSC

VESA Monitor Power Management

**LIVE VIDEO RESOLUTIONS (ENCODE/DECODE)**

- 176x144@30fps (QCIF)
- 352x288@30fps (CIF)
- 512x288@30fps (w288p)
- 576x448@30fps (448p)
- 768x448@30fps (w448p)
- 704x576@30fps (4CIF)
- 1024x576@30fps (w576p)
- 640x480@30fps (VGA)
- 800x600@30fps (SVGA)
- 1024x768@30fps (XGA)
- 1280x1024@30fps (SXGA)
- 1280x720@30fps (HD720p30)
- 1920x1080@30fps (HD1080p30)**

**AUDIO STANDARDS**

- G.711, G.722, G.722.1, 64 bit & 128 bit MPEG4 AAC-LD, AAC-LD Stereo

**AUDIO FEATURES**

- CD-Quality 20KHz Mono and Stereo
- Eight separate acoustic echo cancellers
- 8-port Audio mixer
- Automatic Gain Control (AGC)
- Automatic Noise Reduction
- Active lip synchronization

**AUDIO INPUTS (14 INPUTS)**

- 8 x microphone, 48V phantom powered, XLR connector each with separate echo cancellers and noise reduction, all microphones can be set for balanced line level
- 2 x RCA/Phono, Line Level: Stereo PC input
- 2 x RCA/Phono, Line Level: Stereo auxiliary/ DVD input
- 2 x HDMI, digital: Stereo PC/DVD inputs

**AUDIO OUTPUTS (8 OUTPUTS)**

- 2 x XLR, balanced line level, stereo main audio
- 2 x RCA/Phono, line level, stereo main audio, configurable to S/PDIF
- 2 x RCA/Phono, line level, stereo to recording device
- 1 x HDMI, digital, stereo main audio
- 1 x HDMI, digital, stereo to recording device

**DUAL STREAM**

- H.239 (H.323) dual stream
- BFCP (SIP) dual stream
- Available in MultiSite from any site
- Support for resolutions up to 1080p30 in both main stream and dual stream simultaneously

**MULTISITE FEATURES**

- 4-way High Definition SIP/H.323 MultiSite
- Full Individual audio and video transcoding up to 1080p30
- Individual layouts in MultiSite CP (Takes out SelfView)
- H.323/SIP/VoIP in the same conference
- Best Impression (Automatic CP Layouts)
- H.264, Encryption, Dual Stream from any site
- IP Downspeeding
- Dial in/Dial out
- Conference rates up to 10 Mbps

**PROTOCOLS**

- H.323
- SIP

**EMBEDDED ENCRYPTION**

- H.323/SIP point-to-point and multipoint calls
- Standards-based: H.235 v2 & v3 and AES
- Automatic key generation and exchange
- Supported in Dual Stream & MultiSite

**IP NETWORK FEATURES**

- DNS lookup for service configuration
- Differentiated Services (QoS)

- IP adaptive bandwidth management (including flow control)
- Auto gatekeeper discovery
- Dynamic playout and lip-sync buffering
- H.245 DTMF tones in H.323
- Date and Time support via NTP
- Packet Loss based Downspeeding
- URI Dialing
- TCP/IP
- DHCP

SECURITY FEATURES

- Management via HTTPS and SSH
- IP Administration Password
- Menu Administration Password
- Disable IP services
- Network Settings protection

NETWORK INTERFACES

- 2*** x separate LAN/Ethernet (RJ-45) 10/100/1000 Mbit

OTHER INTERFACES

- USB host for future usage
- USB device for future usage
- GPIO*

PRECISIONHD 1080p CAMERA

- 1/3” CMOS
- 12 x zoom
- 25°/–15° tilt, +/– 90° pan
- 43.5° vertical field of view
- 72° horizontal field of view
- Focus distance 0.3m–infinity
- 1920 x 1080 pixels progressive @ 60fps
- Other formats supported (configurable through Dip-switch):
- 1920x1080@60fps (HDMI only)
- 1920x1080@50fps (HDMI only)
- 1920x1080@30fps
- 1920x1080@25fps
- 1280x720@60fps
- 1280x720@50fps
- 1280x720@30fps
- 1280x720@25fps
- Automatic or manual focus/brightness/ whitebalance
- Far-end camera control
- Daisy-chain support (Visca protocol camera)
- Dual HDMI and HD-SDI output
- Upside-down mounting with automatic flipping of picture

SYSTEM MANAGEMENT

- Support for the TANDBERG Management Suite
- Total management via embedded SNMP, Telnet, SSH, XML, SOAP
- Remote software upload: via web server, SCP, HTTP, HTTPS
- 1 x RS-232 local control and diagnostics
- Remote control and on-screen menu system

STATUS INDICATORS

- Status indicator display on audio module****

DIRECTORY SERVICES

- Support for Local directories (My Contacts)
- Corporate Directory
- Unlimited entries using Server directory supporting LDAP and H.350
- Unlimited number for Corporate directory (through TMS)
- 200 number local directory
- Received Calls
- Placed Calls
- Missed Calls with Date and Time

POWER

- Auto-sensing power supply
- 100-120 /  200-240 VAC, 50/60 Hz
- 800 Watts max rating
- 650 Watts normal operation

OPERATING TEMPERATURE AND HUMIDITY

- 0° C to 35° C (32° F to 95° F) ambient temperature
- 10% to 90% Relative Humidity (RH)

STORAGE AND TRANSPORT TEMPERATURE

- -20° C to 60° C (-4° F to 140° F) at RH 10–90% (non-condensing)

APPROVALS

- Directive 2006/95/EC (Low Voltage Directive)
- — Standard EN 60950-1
- Directive 2004/108/EC (EMC Directive)
- — Standard EN 55022, Class B
- — Standard EN 55024
- — Standard EN 61000-3-2/-3-3
- Approved according to UL 60950-1 and CSA 60950-1-07
- Complies with FCC15B Class B

DIMENSIONS

- Height: 167 cm (65.6 inches)
- Width: 153 cm (60.3 inches)
- Depth: 17 cm (6.8 inches)

WEIGHT

- Weight: 175 kg (386 lbs)

**not supported in version 1*

***requires option*

****only one LAN/Ethernet interface supported in version 1*

****not supported in version 1, future SW update.

*All specifications subject to change without notice, system specifics may vary.*

*All images in these materials are for representational purposes only, actual products may differ.*

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***MTBF PRODUCT RELIABILITY/MTBF***

*The predicted reliability is expressed in the expected random Mean Time Between Failures (MTBF) for the electronic components for Codec C90 and PrecisionHD 1080p camera based on the Power On Hours:*

- Power On Hours (POH) > 69 000 hours
- Useful Life Cycle > 6 years

*ISO 9001 certificate is available upon request*

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